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A JOURNAL
 DEVOTED
 TO BEES
 AND HONEY
 AND HOME
 INTERESTS.

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No. 16.

FROM DR. C. C. MILLER.

I'M NOT SO SURE about my percolated syrup remaining free from granulation.

HASTY THINKS a tax of 5 cents a ton on honey would bring down the figures of some of the big yields.

I'M SORRY H. Lathrop has to break his back for want of a seat when timber looks so plentiful on p. 609.

RUB THE JUICE of an ox-eye daisy on your hands, and bees will not sting them.—*Deutsche Imker*. [Don't believe it would *always* work. Ed.]

JENNIE ATCHLEY, when she gets her bees 10 miles out at sea, can perhaps settle some of the questions on which we're all at sea.—[We see, C. C.—Ed.]

EDITOR YORK has a German setting type for him, so he has adopted the German plan of mixing funny-graphs among his advertisements. Good idea.

EXPERIMENTER TAYLOR found spring packing an actual disadvantage; but Hutchinson thinks it was because the spring was so unusually warm.—*Review*.

LIGHTNING struck the bee-house of H. W. Brice (*B. B. J.*), and "out of 12 queen-cells which were going on nicely till the storm, 8 of the embryo queens were killed outright."

A CORRESPONDENT of *B. B. J.* says that, as sitting hens turn their eggs over, so the workers from time to time turn the eggs in the cells; also that the newly hatched larva is not fed till 24 or 36 hours old.

DRONE COMB, aside from objections on p. 620, is condemned for sections because it doesn't look as nice as worker. [But do you think bees will draw out, fill, and cap over drone foundation quicker than worker, even if the objections mentioned do hold true?—Ed.]

C. W. DAYTON thinks bees leave a super in a regular stampede, and says, "I have seen them go through a single-exit Porter escape four abreast and two deep, or at the rate of 500 per minute."—*Review*.

JENNIE ATCHLEY, in *A. B. J.*, protests vigorously against giving up the use of the word "friend" among bee-keepers. Your head's level, friend Jennie. [Her article we publish in another column.—Ed.]

THE EDITOR of the *British B. J.* doesn't take kindly to the latest improvements in the Bingham smoker. He calls it an uncanny-looking affair with the bellows "wrong end up." [He isn't used to it that way, perhaps.—Ed.]

ALLEN PRINGLE objects to a high Chinese tariff wall. Hasn't he heard that's what makes this country prosperous? We'll get one around the State, and then we'll all be rich. If we had one around the county, we'd be millionaires.

A CORRESPONDENT of *Deutsche Imker* uses one of the rooms of his dwelling as a bee-room, darkening all windows but one, through which the bees fly. While he makes it work for a number of colonies, he frankly names objections.

HUTCHINSON says, where the flow is short and abundant there is less need of separators than where it is slight and long-drawn-out, or subject to frequent interruptions. Most likely. I didn't need any separators this year—nor sections either.

THE WELLS PLAN, having in the same hive two queens with a queen-excluding perforated wooden division between them, has created quite an interest for the past two years in England, and now they are disputing whether the occupants of such a hive shall be called one or two colonies.

HASTY TELLS in *Review* how he solders leaky wash-boilers with propolis. "In applying the stuff, heat the bottom first, then rub all round and over the leaky territory with a lump of the propolis. Put a generous piece of clean tin over the place so the clothes can not get soiled." Leaky wash-dishes, etc., likewise.

IF I WERE to be asked what is the best single point in a good queen-bee, the answer would be, "A large, well-developed thorax." The muscles moving the wings are all located in the chest; and the larger the chest, the larger these muscles and the stronger the wing-power of every worker-bee reared from such queens. — *Dr. Tinker, in A. B. J.*

AT THE SHOW of the Royal Agricultural Society in England, the cost of hives that took prizes for "Best and most complete frame-hive for general use" was \$5.25, \$6.00, and \$4.63. Those taking prizes for "Most complete and inexpensive frame-hive for cottagers' use" were priced \$2.13 and \$2.63. The Cowan Rapid extractor took first prize.

DOOLITTLE GIVES in *Review* his reasons for concluding that 1000 square inches of comb is about right for the brood-nest. I'd like to get him and Dadant shut up together for a day. [Doolittle's estimate of 1000 inches accords almost exactly with the number in the eight-frame Langstroth hive, and yet he has a different frame.—*Ed.*]

SOME GERMAN societies have a central depot where the honey of members is sold at a fixed price agreed upon in July. Each member can sell his honey privately at any price he pleases. The label of the producer is a guarantee of purity, and adulteration subjects a member to expulsion in some societies, to prosecution in others.

THOSE 50 NEW HIVES that I said I was going to try, V-edged Hoffman frame and all, were ready and waiting in good time. They're waiting yet. Only one is filled with bees, and that not satisfactorily. I thought I could have them filled, no matter what the season was. Not as smart as I thought I was. Not half. [Too bad you had an entire failure of the honey crop. We wanted to show you that the V edge is still "in it."—*Ed.*]

WHAT A QUESTION that is on page 608! No, sir-ree. If there's any one thing I can't stand, it's having my neck choked, so I never tuck veil between neck and shirt-band. I wear my veil same as Emma, only she pins hers down when she puts it on, and I generally let mine hang loose till a bee gets in and stings me. But I sweat the black off the veil on to my shirt in a little while without the white border. [We were not sure from that Straw whether you practiced the neck-choking way or not; hence that question.—*Ed.*]

THE STANDARD DICTIONARY, just published, is preëminently the bee-keeper's dictionary—the only one, I think, that has made any effort at completeness and correctness in bee-keepers' terms. I suspect much credit for this is due GLEANINGS' editor. Aside from its special value to bee-keepers, it is a grand work, containing a third more words and terms than even

the expensive six-volume Century dictionary. [All the credit we can claim is, that we put the dictionary people on track of Dr. Miller, requesting them to put apicultural terms in his hands. They did so; and although we have not seen the new dictionary, we expect that the results will be highly satisfactory.—*Ed.*]



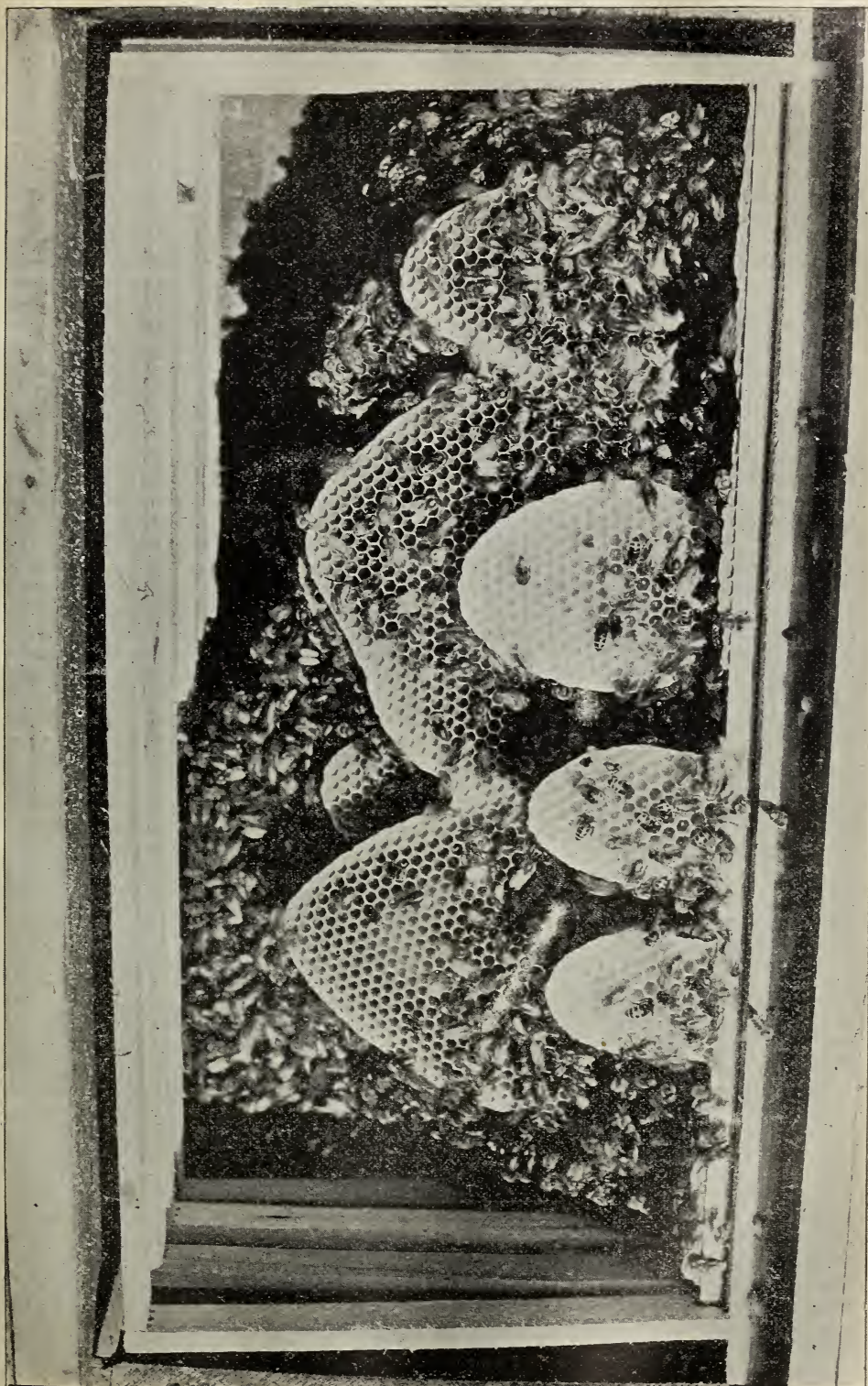
WHY SWARMS BUILD IMPERFECT OR DRONE COMB IN THE BROOD-NEST.

THE IMPORTANCE OF YOUNG QUEENS, AND PROPER SIZE OF BROOD-NEST FOR THE SECURING OF ALL WORKER COMB.

By W. Z. Hutchinson.

Ten years ago I was led to believe that bees would store more surplus comb honey if, under certain conditions, swarms were allowed to build their own combs in the brood-nest. Subsequent experiments proved the correctness of the theory. It might be well to remark, parenthetically, that Mr. R. L. Taylor conducted a series of experiments in this line during a period of three weeks in the summer of 1893, in which the swarms furnished with combs or foundation came out ahead of those building their own combs; but there is another point in connection with the matter to which there has not been attached sufficient importance; viz., that, while the swarms building their own combs were outstripped in the beginning of the race, they soon began to gain upon their opponents, and continued to do so at an increasing speed to the end of the allotted time. I have always regretted that the test was not for a longer time—say twice three weeks, covering the whole of white clover and basswood bloom. I know that it is more profitable for me to have swarms on starters only, when working for comb honey. Briefly stated, I look at the matter something as follows:

If given combs in the brood-nest, the first step of the bees is to fill them with honey. Having done this, there is a halt, a hesitancy in commencing and continuing work in the supers. The disposition of bees to do thus and so, to begin work or not in a new compartment, is a factor to which not enough attention has been paid. It is not always the most populous colony that stores the most surplus. I have seen a colony of less than average strength pile up super after super of honey, while another much stronger would do but little in the supers because the conditions were such that the bees "didn't feel like it;" perhaps they had in some way been "snubbed," and were "sulky" in consequence. I have heard it said that there is nothing in this; that, with honey in, the



fields, it would be brought in and stored somewhere—if there was no room in the body of the hive, it would go into the sections. I don't agree. Let me illustrate: I have sometimes been so fortunate as to have, in the spring, enough drawn, or partly drawn, combs in sections to enable me to furnish a part of my colonies with a full case each of such sections. Colonies so furnished begin storing honey in the sections at the *very beginning* of the harvest, and often have the first case filled with honey, and work begun in a second case filled with foundation, when colonies simply furnished with foundation in the first case are just beginning work in said case. Those clean, dry, empty combs just above the brood-nest are such a temptation to the bees that they just pitch in and fill them. This puts the bees in a *mood* to store their honey in the supers, and they keep on doing so. The colony thus early led to turn its energy superward is more likely to lay up a goodly store of surplus. But this is a digression.

If no combs are given in the brood-nest, and the supers of sections in all stages of completion are transferred from the old hive to that of the new swarm, the bees are compelled to begin storing honey in the supers; and where they begin, there will they continue.

Another advantage, although I consider it the least, of allowing the bees to build their own combs, is in saving the cost of foundation.

Of the many bee-keepers who have tried this system, I believe all, or nearly all, have secured more surplus honey as the result; the only objection to the plan being the exacting conditions necessary to secure the filling of the frames with perfect worker-comb. Some have even gone so far as to advocate the following of this system though it involved the sorting of the combs in the fall, and the rendering into wax of the imperfect ones. This is not necessary. For the past ten years the majority of my swarms have built their own combs, nearly all of the combs being perfect worker-combs, and but few words are needed to tell exactly how such combs may always be secured. *Have young, prolific queens, and contract the brood-nest.* That is all there is of it. So long as the queen keeps pace with the comb-builders, all goes well; but let them get the start of her, so that comb is being built to any great extent for the storing of honey, and at once a change is made to "store" (or drone) comb. If the brood-nest is too large, the first-laid eggs are likely to develop into bees that will emerge from their cells ere the brood-nest is completely filled with comb; and it is when the queen deserts the comb-builders to restock with eggs the centrally located cells that are being vacated, that drone-comb is being built. I don't remember having seen a drone-comb among the first built by a newly hived swarm; it is the outer combs, built when the bees have outstripped the queen,

or while she is refilling with eggs the ones first built, that contain the drone-comb. The remedies are, a queen so prolific that she can keep pace with the comb-builders, and contracting the brood-nest to such an extent that it will be filled with comb before the bees from the first-laid eggs emerge from the cells.

Bulged or crooked combs are also the result of a large brood-nest. The bees begin comb-building in the central frames. As a comb is completed, it is sometimes slightly bulged into the space between it and the adjoining outside frame—particularly so if the second frame contains no comb, or a comb that is not so far advanced as the one in the first frame. This causes the comb in the second frame to be bulged into the next outside frame, and so on with an increasing bulge as each succeeding frame is reached. When the last frame is reached, its space may be so encroached upon that perhaps no comb, or only a thin, misshapen one, may be built inside it. Proper and exact spacing will do much to overcome this state of affairs; but with a medium or small swarm in a large brood-nest, something of this kind may be looked for. In the illustration given, showing the side of a hive removed, a swarm a little below the average in size had been hived three days upon eight L. frames, the bees also having access to and working in the supers. It will be seen that the central combs are half or two-thirds completed, while in the two outer frames work has only been commenced. Had "dummies" been put in at the sides, reducing the number of frames to five, all of the combs would have been commenced at the same time, advanced in growth at about the same rate, been finished nearly all alike, and there would have been no *opportunity* for bulging. A comb is never bulged when it is built between two others, the growth of which keeps pace with its own.

When I began the practice of hiving swarms upon starters in a contracted brood-nest, I was using the eight-frame Langstroth hive, putting "dummies" at the sides, and contracting to five frames; and I secured such straight worker-combs that those built upon foundation might almost look upon them with envy; but with the Heddon hive, unless the swarm is unusually large, such perfect results, especially in the one or two outer frames, are not secured. The trouble is, that the brood-nest is compressed the wrong way. It is not the wrong way so far as work in the supers is concerned; it is superior in that respect, but it furnishes too large a surface at the top of the brood-nest; that is, there are too many frames in which to begin work. Reduce their number to five, and all of the combs will grow at the same time, and be perfect, as has been explained.

Keep young queens, and contract the brood-nest when hiving swarms on starters only, and

there will be neither drone nor crooked combs; if this can't be done, then use full sheets of foundation, as permanent success is most certainly coupled with straight, perfect, all-worker combs in the brood-nest.

Flint, Mich., July 31.

[On page 588 reference was made to the fact that W. Z. Hutchinson was making some beautiful photographs illustrating some of the different phases of apiculture. One of these pictures was especially fine. We wrote to friend H., requesting the privilege, if he had not made arrangement to dispose of it elsewhere, of submitting it to our readers in half-tone; and in case he consented, to write an article on why swarms build imperfect or drone combs in the brood-nest. We thought he had, perhaps, planned to have it appear in his own journal; but as he had not, he kindly consented to let us use the photograph, and sent the article above, which covers just what we had in mind.

We regret that the half-tone does not show all the delicate details of the original photograph; but it does fairly well. The accompanying article, we are sure, will be read with interest, as it boils down in a nutshell the very information that so many have been seeking of late—how to get *worker* comb without foundation. We presume, however, Bro. Hutchinson would use foundation starters, as the frames before appear to have a narrow strip fastened to the comb-guides.

Although we are foundation-makers, we shall gladly welcome any plan that will save the bee-keeper expense, for he needs all the help he can get. The prices of honey seem to be trending downward, and, of course, expenses, where possible, *must* be cut down.—ED.]

THE PHENOL CURE FOR FOUL BROOD.

FULL PARTICULARS HOW TO PROCEED, ETC.

By H. Stephenson.

Friend Root:—I was glad to see, in your issue for Jan. 1st, that my experience with carbolic acid as a cure for foul brood was so fully indorsed. I feel sure that, if you give it a proper trial, should you be unfortunate enough again to encounter it, you will never try any thing else.

Cheshire's mode of procedure fully carried out leaves nothing to be desired; but no half measures will succeed; and before you condemn his methods you ought, in all fairness, to conform to his suggestions. So far as I can gather, the solution you tried was only one-tenth of the strength of that he prescribes. If you will re-peruse his article you will discover that he employs two distinct solutions:

1. For disinfecting—Carbolic acid, 1; water, 50.
2. For remedial treatment.—Carbolic acid, 1; syrup, 500.

For the benefit of those who may not have his book I will give a summary of what is, in my opinion, the most reliable system to adopt.

Alas! I have indeed been "through the mill," and can speak feelingly; but now I am glad to

say I am master of the position. Cheshire has established two most important points:

1. That the ovaries of the queen are frequently infected—so much so that every egg she lays will contain the disease in embryo.

2. That the spore of this bacillus will not develop in acid solutions.

Acting on these two axioms, the diseased colony must be requeened; and any syrup fed to them *must* have a distinctly acid reaction. The acidulation of syrup for bees, we all well know, is important as a preventive of recrystallization in the cell; but the fact that bacillus alvei requires an alkaline pabulum for its development makes the point doubly important.

I must here add a special note of caution, before proceeding further, on the great danger of spreading the disease; and this being the case, our mode of procedure must be most systematically thought out before we undertake to fight it. I will here give a list of our requirements.

Besides the necessary tools and smoker, we must be prepared with—

Solutions 1 and 2; a small ball syringe; a bowl of water for washing the hands; a complete hive; one division-board; 4 strips of gauze for closing entrances; one drone-cage and a healthy queen, together with a frame of unsealed brood on which she is to be caged. The frame selected should contain little or no honey but plenty of empty cells. The adherent bees, of course, are to be swept off in front of their hive.

While we have the frame in hand, a few ounces of solution No. 2 are to be carefully injected into the cells adjoining the brood. The frame with caged queen is now to be placed in the new hive, the division-board drawn up to it, and the quilt adjusted to prevent chilling. The entrance having been closed with one of our strips of gauze, the hive may be placed in a convenient position for receiving the bees of the colony to be operated on.

We next proceed to find and destroy the queen in the diseased colony. This having been done, the hive is to be undisturbed till bees have ceased flying in the evening, except that we should now take the opportunity of removing all hopelessly bad combs, leaving one less than the bees can well cover. The removed combs must be strongly sprayed in solution No. 1, and put away for rendering. If they contain honey it can be saved by melting the comb in an inner vessel surrounded by boiling water or steam. The wax can be skimmed off on cooling; and the residual honey, after a careful scalding, can be fed back with perfect impunity.

We will now give all our tools a good spraying, and have a general wash-up, using water to which a little of solution No. 1 has been added.

We now defer the rest of the operation till such time in the evening as bees shall have ceased flying. If the infected colony can be isolated, so much the better; otherwise we must be content to leave them in their original position after they have been relieved. In this case, however, the occupied ground must be carefully watered with carbolic solution, or carbolate of lime must be scattered around.

Evening having arrived, we will commence operations by closing the entrance of the adjacent hive on either side, with strips of gauze, to prevent risks of entry by our patients while the process of transferring is proceeding. We now close the entrance of the infected colony with our remaining strip of gauze, and remove it. Next, the ground it occupied must be disinfected, after which the new hive must be placed there: and a board leading up to the entrance having been arranged for the convenience of the bees, the combs of the infected colony are to be shaken over it, the division-board and quilt having been removed, so that the bees may be enabled to discover their new queen. If there is any difficulty in getting them to enter the new hive, this is easily removed by placing the comb, on which the queen is caged, outside, and leaning it against the entrance, when the bees will quickly cluster on it. While this is going on, half a pint or so of the carbolyzed syrup may be injected into the shaken combs of the diseased colony, after which the frame containing the caged queen (on which many of the bees will now have collected) is to be placed in the hive, and the other combs are to be ranged on either side of it.

They are now to be contracted into a suitable space by employing the division-board; the quilt is replaced, the hive closed, and its entrance also, the piece of gauze being again replaced. The bees must be closely confined for 48 hours, at the end of which time their new queen will probably be acceptable; when so, she is to be released. As soon as the queen commences to lay, the developing brood must be carefully watched, and each day a few ounces of carbolyzed syrup should be injected into the adjacent cells. The sealed brood will also need scrutiny, and any unhealthy patches must be sprayed with solution No. 1, whenever discovered. In a month's time all should be safe.

The old hive is to be carefully fumigated with burning sulphur, and next morning it must be painted externally and internally with solution No. 1. This should be done twice or thrice, after which it may be put away for future use. As this neighborhood has been heavily visited with foul brood, I find it advisable to medicate spring food, as, before the honey crop opens, scavenging among diseased colonies, which are too often carelessly exposed, is apt to spread the evil once more.

The disinfectant I use with my spring feed is that recommended by my old friend Muth, of Cincinnati: 16 grains salicylic acid and 16 grains soda borax, to each quart of honey or syrup.

I fear my article has become somewhat lengthy; but unless minutiae are attended to, perfect immunity can not be attained.

Innesshannon, Ireland.

[We believe Mr. Frank R. Cheshire to be an eminent scientist, and one who has done much—*very much*—to advance real science in bee culture; but his conclusions in regard to foul brood, or *Bacillus alvei*, strangely disagree with our experience in one or two particulars. Out of 60 or 70 colonies which we treated for foul brood, every one was allowed to have its own queen after treatment—that is, after putting on frames of foundation in clean hives; and in none of these cases did the disease develop again. Indeed, we have taken queens from diseased colonies and put them into healthy ones, to test this very thing; but foul brood did not follow in their wake. If the ovary of the queen contains the diseased germs, as stated by Cheshire, they are not transmitted, or were not in our cases, to the brood.]

Now with regard to the phenol, or carbolic acid. As we have related before, Prof. Sargent, at our suggestion, prepared some pure "cultures"—that is, test-tubes containing beef gelatine, that had been sterilized of course. Into these tubes he introduced the virus of foul brood. Later examination with a microscope showed that the bacilli grew rapidly; and a twelfth-inch objective showed exactly the same microbes that are illustrated in Mr. Cheshire's work. Into these tubes containing the germs of foul brood he introduced phenol solutions such as are used for feeding bees, of the strength recommended by Cheshire; but it did not kill the germs. Other tubes of gelatine could be inoculated from the tubes treated with phenol, showing that carbolic acid of the strength proposed by Cheshire, at least in our own case, failed to kill the germs. This was exactly in accord with our own experience in spraying some dozen or so colonies that we had been experimenting on, but without any satisfactory results, the disease reappearing after repeated sprayings. You suggest, that perhaps the solution used by us was not strong enough. In some cases we made it so strong that it actually killed the *bees themselves*; but did it kill off the foul brood? Not a bit. The most we could ever say for the phenol, or carbolic acid, was, that it *seemed* to hold the disease in check; but further than this we could discover no effect. For these reasons we have discouraged the use of phenol, or carbolic acid, as a waste of time, and at the same time it is a great risk.

As it is possible that we may have erred in some of our experiments, and have not given the Cheshire treatment a fair trial, we are glad to place before our readers the article by Mr. Stephenson.—Ed.]

STARVATION A CAUSE OF BEE-PARALYSIS.

Mr. Dayton writes me that he thinks starvation causes the "new bee-disease." Brodbeck is getting honey again from honey-dew. He sends me leaves on which I find honey-dew and aphides, or plant-lice. This dry year in California is very favorable to both scale and plant lice.

A. J. Cook.

Claremont, Cal., July 23.

RAMBLE 114.

THE OLD SPANISH MISSIONS, ETC.

By *Rambler*.

From our pleasant camp on the "Lucky" Baldwin ranch we moved on as soon as we had disposed of our morning meal, washed our tin dishes, etc. No fragile crockery is used in this tour. The lightest and most substantial culinary utensils are the best. We found that fifteen minutes was sufficient to pack our whole outfit into the wagon, and we were ready to take any direction. The direction this time was toward the San Gabriel Mission, with its outlying borders flanked by a few Mexican adobes.

Those old missions have a special interest to the traveler, as they were the pioneer points of a new era for all of this sunset country. From

1690 to 1820 these missions were industriously planted. The Spanish "Padres" came here to subdue the soil and the Indian. The olive and the vine were planted in the valleys, and thousands of cattle roamed the hills. The intractable Indian was approached with food in one hand and the cross in the other. The influence thus brought to bear upon soil and man was salutary. The Indian soon learned that lifting hair was not the chief end of his existence. It is a fact, however, that, after several hundred years' effort, the ordinary "greaser" is the product; and it is questionable whether the improvement is much better than the original native. The settlement of Spaniards, and the extension of their power, has had the far greater and more lasting influence. The missions have in a great measure served their day, and are now falling to ruins; and but for the hands



OLD MISSION, SAN FERNANDO, CALIFORNIA

put forth by those who love the quaint and ancient landmarks their adobe walls would soon crumble to dust, and the world would know them no more. It is not an unusual sight to see some old-mission bell hanging to the limb of a decaying tree, tongueless and mute, while the spot upon which stood the mission is marked only by an unsightly weed-covered mound.

We reflect, with a tinge of sadness in our minds, that this same mute bell, in times past, called the worshipers from over the hills, and was a potent factor in their daily lives. The old burying-ground near by, with its wooden crosses, marks the place where the body has been tolled to its final resting-place, and no doubt the now mute old bell has lent its musical tones to festal and marriage scenes.

The more pretentious missions have several bells. They are tied with rawhide ropes to the beam above, and a hammer strikes the bell; thus the chimes of the bells are sweet to listen to in the evening hour. With the artist's aid I present a photo of one of these decaying landmarks known as the San Fernando Mission, in San Fernando Valley. Only one small room is now used for religious purposes, while the other rooms are used for the junk from a large ranch.

From San Gabriel we made a rapid drive to Los Angeles. We, and especially our team, fresh from the free and untrammelled air of the country, entered Los Angeles, and tried, as well as we could with our nondescript outfit, to appear somewhat "cityfied," but it was out of the question; for Reina bolted as though in fear the tall buildings would fall upon her, and in various ways our ponies betrayed their country breeding and Indian blood. The



untrammelled Indian, with his squaw and papoose, in like manner, when he first visits a city, eschews the civilized sidewalk, and promenades in the center of the street, the observed of all observers; and from the number of glances toward us we were too much observed. After laying in a stock of provisions and photographic supplies we rattled the Los Angeles dust from our wagon-wheels and made for the Cahuenga Pass, and passed through it and camped over Sunday on the banks of the Los Angeles River, in the shade of the willows. From our points of view there was but a small amount of bee-forage in this portion of Los Angeles Co., except, perhaps, upon the river bottom. In order to see the best honey resources of the county, and find the bee-keepers, it would have been better to follow out on the Pasadena (or east) side of the valley; but we got started this way from the city, and followed it. Our continued journey across the San Fernando Valley revealed abundant cactus growth, and not a great amount of sage or other honey-producing flora; and such flora as we saw was withered by dryness and obscured by dust.

At San Fernando we found the mission previously spoken of. A little beyond it we came to the San Fernando Pass; and, learning from other travelers of the arduous climb before us, we camped, preferring to make the ascent with a fresh team in the morning. Mr. Wilder went out for a little hunt, and returned with a large white owl—a subject for taxidermy—and reported the finding of an apiary just over the hill. I visited it in the morning, and found a very neatly arranged collection of bee-hives and honey-houses; and, as a sort of remembrance of the place, I shot a rabbit in the suburbs.

In the morning we addressed ourselves to the task of getting through the pass. In all of this California country, in crossing from one valley to another we have to enter the mouth of a canyon, and toil up a winding grade, more or less steep, until we emerge from the tail end of the canyon. We then pass to the tail end of another canyon, and have the same sinuous grade down, and emerge into the valley from the mouth of the canyon. This was a most arduous pass, and was made passable only by making a cut some sixty feet deep, and barely wide enough for the wagon to go through. Going down the other side was quite an arduous undertaking. We have no brake on our coach, so Mr. Wilder sawed on the reins, and halloed "Whoa!" while the Rambler tied a rope to the rear axle, and held on; and thus we safely descended. My strenuous labors in the rear relieved the pressure on the horses immensely, and saved us from a catastrophe, perhaps. In thus going down the grade, however, I felt some like the Irishman who was clinging to a pole, with another Irishman hang-

ing to his feet. When the strain became great, upper Irishman shouted to the one grasping his feet, "Arrah there, Pat! hang to yer houl't below till I spather me hands above." I did not "spather" my hands, which accounts for our safe descent.

The mouth of this canyon opens into the Newhall country. This is quite a center of the bee-keeping industry, and there are many apiaries located in the canyons that open into the valley. We passed one on quite a steep down grade, and learned afterward that it was one of Mr. Wilkin's apiaries. Mr. Wilkin also has another a few miles from this. We pushed along through Newhall into the Saugus country. The readers of GLEANINGS have had more or less to do with dry and wet towns. Some rejoice when they hear that a town has gone dry; others rejoice over the wet aspect. Those who like the dry towns should move to Saugus. It is as dry as a bone this year. The dust rolls up beautifully; even the barbed-wire fences had a dried, harsh appearance. Ordinarily this is a great stock country; but there was not a "cattle on a hill," and not a blade of grass to keep a grasshopper alive. I fell to speculating, that, if this was the country in which Mr. Hewes cultivated the honey-bee, there was good reason for his acrimonious remarks in a late number of GLEANINGS. After passing the Saugus water-tank, which is the chief building (appropriate for a dry country), I began to feel a touch of the blues—sort of imaginary sympathy, I suppose, for the bee-keepers in that vicinity who are feeding bees or losing them by starvation; for some, I regret to say, are following the latter alternative. The touch of blues was, however, dispelled when we struck the head waters of the Santa Clara River, and the center of the Newhall ranch. Here was a fertile valley, with hundreds of horses and cattle grazing on the succulent herbage. We camped on the banks of the winding river; and, as the saying is, we had a "fly time" here. Pharaoh might have had a worse time; but this being a stock-ranch, the flies were numerous enough to be an inconvenience, especially in the cool of the evening, when they persisted in taking possession of our tent.

The main episode, as we continued our journey, was the mistake of getting upon the wrong road, and another mistake in not continuing upon the wrong road. The peculiarity upon roads in this country, where large stock ranches are owned, is the frequency of gates upon the main roads. The Newhall ranch contains 49,000 acres. By placing a gate across the road it holds the stock on several thousand acres without the expense of fencing the road. The supervisors of a county are very obliging to the big ranchers in this respect, and thus allow the gates. One of these gates led us to keep on in an open road, and we were headed direct into a

canyon nearly opposite the direction in which we thought we ought to go. When about to cross a little stream we heard a festive voice rising in musical tones, and, searching a few rods further down among the trees, we found some young men camping, and from them learned that we were headed into the Castail Canyon. We turned around and retraced the lost mile and took the road with a gate across it. Now, the mistake we made in not following up our mistake, was that, just about a mile or so up the Castail Canyon, we should have found Mr. Mercer's apiary, and at that time he was at work in it, as we afterward learned; and, not far from the Mercer apiary, Mr. Hewes holds forth. Had we called upon our friends, no doubt we should have enjoyed a sort of picnic. It is, however, too late for regrets, and we will try to do better next time.

After passing the aforesaid gate we rode at least ten miles and saw no signs of habitation, with the exception of a couple of bee-ranches off to the right in the foot-hills. One of these, known as the Black apiary, on account of the dark and weather-beaten appearance of the hives, is owned by Mr. Moffat, of Los Angeles. It is in the midst of the best black-sage country in Los Angeles or Ventura Counties, and has yielded as much as 400 lbs. to the colony. Mr. Hewes, being located not far from it, should exercise a little of his surplus energy, and raise his average a little. From later information, I learn that Mr. Moffat always leaves an abundance of stores in the hives for wintering, and requeens his colonies often, which is the proper idea entertained by the

RAMBLER.

POMONA COLLEGE.

ALL ABOUT IT, ETC.

By Prof. A. J. Cook.

Dear Mr. Editor:—I have been requested, and even urged by many, to send to you, for publication, answers to the following questions: What kind of an institution is Pomona College? Would you advise any one to make California a home?

Pomona College is situated in the San Gabriel Valley. The mountains compass it about, and are very high and close on the north. To the south, for forty miles, is a valley of wondrous fertility and beauty. Thus we look down on hundreds of acres of orchards, bearing the fruits of every zone, whose rich verdure gladdens the eye alike in winter and summer. The climate is delicious. I doubt whether Italy can boast of any thing more delightful. What is equally important, it is as famed for its salubrity as for its beauty. Health-seekers come here from all regions of the world. Claremont, the seat of the college, is situated on the Santa Fe R. R., midway between Los Angeles and San Bernar-

dino, the two largest cities of Southern California, and is 35 miles from the former place. The soil is granite gravel, and so it is never muddy about the college. I have ridden on my wheel every day since I came here, Dec. 29, and have never had to clean mud from my bicycle, though we have had some very hard rains. Claremont is yet new, but is rapidly improving, and will soon be one of the most lovely places in Southern California.

Pomona, Chino, and Ontario, are all close by, almost in sight. The people in the whole San Gabriel Valley, from Los Angeles to Redlands and Riverside, are exceptionally cultured, intelligent, and refined. It is common to find graduates from all the eastern colleges, cultivating their own orange, lemon, or olive groves. Nearly all are church-going, Christian men and women. Two of the largest cities in the valley, and all the small towns, entirely prohibit the saloon. There is probably no country in the world where the fruit and bee-keeping industries can be more successfully and profitably prosecuted than here. Thus I have said enough to show that Pomona College is most fortunate in its location. Scenic beauty and grandeur; lovely, healthful surroundings; refined Christian people, are a trio of circumstances in which any college would thrive with vigor.

Pomona College is only six years old, and has just graduated its first class of eleven—a class of whom all here are justly proud. There are fourteen in the corps of instruction; and there have been 196 students in attendance during the past year. There are two fine buildings, which were well shown in a recent number of GLEANINGS. Notwithstanding the great business depression, \$50,000 has been raised the past season, which secured a gift of another \$50,000, thus giving us an endowment of \$100,000. Two professorships are endowed, and, aside from the \$50,000, enough has been raised the past season to pay all current expenses, and, provisionally, the same for five years to come. Pomona College has a host of friends in the State, and is confessedly the best college in Southern California, as she is the largest. She deserves it all, for she does exceptionally good work, and is working successfully to develop grand Christian character. In short, Pomona College is a Christian college, like Oberlin, Amherst, Williams, etc., with an able faculty of earnest Christians, and with a grand lot of Christian students, loyal to the core. Thus the spirit and work of the college attracts all who become acquainted with its influence and management. It is a safe place to send young ladies and gentlemen. The studious and right-minded will find all congenial; the unchristian and wayward will likely be won by the spirit of the place, and will fall in to the general trend of industry and right living. Our country, and especially California, needs

just such grand men and women—bright, cultured, Christian, as Pomona is sending out.

And why am I here? I love and believe in just such colleges. Besides, the President is a broad-gauged man, and saw the importance of the bee-keeping industry, and the economic relation of entomology to fruit culture, and so wished a zoologist alive to these departments of study, and I was offered the position. I have already had a class of seventeen in economic entomology and apiculture.

Would I recommend any one to come here? If such are well and happily located in the East, no. If impecunious, emphatically no, unless some position is assured. If a man has a few thousand dollars, and wishes a more genial and delightful climate, and especially if impaired in health, and finds the winters severe and trying, then yes; and if he, to all this, is fond of orcharding or bee-keeping, then decidedly yes. If to these last he has a family to educate, then surely he could make no mistake in locating right here at Claremont. A small orchard from three to ten acres, and an apiary of from 50 to 150 colonies, which could be moved to catch the best, would be profitable and delightful. In this land, where irrigation is practiced, uncertainty is almost banished in orcharding, and is no more common in apiculture than in other places.

Claremont, Cal., July 12.

[Even if the above does savor somewhat of an advertisement for Pomona College, it is advertising of the right sort, and we are glad to encourage institutions of this kind.—ED.]

THE ROOT-HATCH DISCUSSION.

DO QUEENS LAY IN TWO STORIES, OR DO THEY PREFER ONLY ONE?

By Dr. C. C. Miller.

Seldom am I so deeply interested in reading any thing as I was in reading pages 572 and 573 of GLEANINGS. In the first place, I am interested in the subject from a dollar-and-cent point of view; for, as Ernest says, "if there is a difference . . . it is important to know which is better." In the second place, the two sides are argued by men of ability, and, what is perhaps more important, by men of fairness. I believe it will be in the interest of our pursuit if the same two men fight it out to a finish. I don't mean for them to occupy two pages of every issue, but to give all the honest arguments they have, each one doing some experimenting in both directions, each one offering a new point as often as he gets one; and although the finish might not come in two years, it would be of value when it did come.

As one on the fence, not ready to take sides with either, I might be asked to keep out of the fight. But it will hardly be amiss for any one to mix in if he can do any thing toward

settling any of the points at issue. I had fondly hoped that, by this time, I should have learned quite a little from my own experience of this summer as to the different results from the different-sized hives. But the terribly disastrous season put me all out in that respect. I think not more than five or six of my colonies made the least start toward working in sections, and only one of these filled a single section. So I can't tell what might have been done in a good season by any one of my perhaps 30 colonies which had more than eight combs, some of them sixteen.

Bro. Hatch makes a good point in saying that, in comparing 150 colonies in eight-frame hives with 120 in ten-frame hives—the same number of frames in each—the same force of bees will give a greater amount of work for the bee-keeper with the smaller hives. And yet, when Bro. Hatch comes to be less rugged and strong than now, he will admit quite an offset. Just so far as the swarms are concerned, he can hold his ground. It's just as much work to take care of a swarm from an eight-frame hive as from a ten-frame; and if bees were just as much inclined to swarm in one hive as the other, then there would be a fourth more swarms to care for with the small hives. But when you take into account the greater tendency to swarming in the small hives, I suspect it may be safe to say that the labor of swarming will be four or five times as much with the 150 small as with the 120 large. Even in that, however, there is an offset. If the old hive is to be lifted every time of swarming, I'd rather have more swarms and lighter hives. For a very strong person there might be little or no difference. But suppose the lifting of a ten-frame hive is the limit of my strength—that is, I can lift it, but that's all. In that case I'd rather lift three eight-frame hives than one ten-frame hive. And whether the hives are lifted at swarming time or not, the bee-keeper who runs an out-apiary must count on a good deal of lifting if he hauls his bees back and forth.

If I didn't believe C. A. Hatch to be a thoroughly reliable man I should doubt one of his statements; and I'm puzzled to know what peculiarity makes so much difference between his experience and mine. He says his queens will go into an upper story, but will not come down again into the lower story. In the first place, it seems to me I wouldn't give additional brood room above, but would give it below. For not only will my queens go back down to the combs that had brood in, but they'll go from an upper story down into a lower story that has no brood in it.

Just now it occurs to me that perhaps the reason for the difference is, he is talking about bees in ten-frame hives and I'm talking about eight-frame hives. Suppose a queen capable of keeping 11 frames filled is in an eight-frame

hive. She will feel so crowded that she will go taken; whereas, if she had two more frames above she would be content with that rather than go below.

Some years ago I had a lot of combs to be taken care of, and I put them in hives and set them under hives containing full colonies. They were left there till the honey harvest was on, and a number of them—I can't now tell how many—had brood in them. There, you see, was a case in which the queen went from the second story down to empty combs in the first story. I've had a good many cases since of queens working in two stories, but not always with empty combs below. Wait just a minute and I'll go and examine a colony that I know has been occupying more than one story.

Well, I've been and examined No. 10, and I'll tell you what I found. First I'll tell you what shape it was in at my previous visit; for, for some reason, I put it down in my record-book. Here's the entry: "July 20, 7 br below, 4 above; only eg & sbr below." That means there were 7 frames of brood in the lower story and 4 frames of brood in the upper story, and that there was no unsealed brood in the lower story—only eggs and sealed brood. There being no unsealed brood below, the queen must have spent about five days upstairs on her last visit there.

To-day, July 25, I find, on looking through the upper story, four combs crammed with honey, and four of brood in all stages; but very few eggs. In the lower story, six frames of brood in all stages, and eggs abundant; but very little honey. It seems pretty clear, that, in this case, the queen goes up and down quite freely, doesn't it?

You two disputants disagree on one point—Ernest thinking that a colony having eight frames of brood in a ten-frame hive will have the same amount of brood in an eight-frame hive, while friend Hatch thinks it will have only six in the smaller hive. According to my experience (and on that point it is large), the truth lies between the two, but not midway, for it is nearly as friend Hatch says. Bees seem to prefer to have the two outside frames without brood, and one or both of them will be found largely filled with pollen. In a ten-frame hive you will often find eight frames filled with brood; and while you may find brood in each of the eight frames of an eight-frame hive, it would be a remarkable thing to find those eight frames filled.

I feel pretty safe in saying that bees will not put brood in either of the outside combs except under pressure. When I had ten-frame hives I never knew a case in which there were ten frames of brood, although it seems nothing unusual to have ten and even eleven and twelve when plenty of room is present. Occasionally

some brood would be put in the ninth frame of a ten-frame hive; but I think I never knew it to be filled.

I am inclined to the opinion, Ernest, that in those hives at the basswood apiary, where you found a hive with brood in eight of the frames, if the same colony had had eleven frames you might have found brood in nine frames, and very likely each one of the nine frames filled. Some other points I will touch another time.

Marengo, Ill.

[As Dr. Miller has already sent in a second article, to be printed in our next issue, we will reserve our own reply till then; but for the present we may state that our experience, so far as brood is concerned in two stories, is different from Mr. Hatch's, and quite in line with Dr. Miller's.—Ed.]

THE EIGHT VERSUS THE TEN FRAME HIVE.

THE EFFECT OF LOCALITY ON THE QUESTION.

By E. S. Alexander.

I am one of that contemptible class of small bee-keepers, keeping from twenty to forty colonies. I offer, as an argument in favor of ten-frame hives as against the eight-frame, for the South, the following:

My first hives were mostly eight-frame, using only a few ten-frame hives by way of experiment. The increased honey from the ten-frame hives was not represented by the ratio of 10 to 8, but nearer that of 84 to 24, or, at least, 56 to 24. My swarms from ten-frame hives are stronger, and commence storing surplus sooner. As I am keeping bees for money, rather than to demonstrate theories, this is sufficient reason for me to prefer the ten-frame hive. I am now making only the latter, using my old eight-frame hives to hold weak swarms.

SMALL HIVES THE CAUSE OF BEES CLUSTER- ING OUT.

Many people have so much of the spirit of scientific inquiry that they will not believe a fact is a fact unless it is substantiated by a formidable array of more or less plausible theories; so, here is my theory:

While our maximum summer temperature here is not so high as in the North, the sultry part of the day is much longer, giving the heat a chance to be oppressively penetrating. As a small thin-walled house or room is more uncomfortable in hot weather, so is a small hive. That bees are susceptible to the heat can be demonstrated by placing equal amounts of honey in an open dish and under glass (as in a Mason jar laid on its side so as to be easily accessible) on a hot day. In the open dish only a few, if any, dead bees will be found in the evening, while in the glass jar will be almost, if not quite, as much in bulk of dead bees as there was of honey in the morning. The only inference I can draw is, that the bees get sun-

struck in the jar. Swarms often leave an entire frame on the south side unoccupied, and often a row of section boxes on the south side. On sultry days, the bees of my small hives are the first to lay out. We have had a dry hot summer so far this year. On some hot days almost all the bees of some of my small hives will be clustered on the outside of the hives, leaving little more than a corporal's guard on the sultry inside, while the large hives will have a good supply of bees at work on the inside.

We have been having a splendid flow of honey-dew for the past five weeks. Honey-dew, by the way, is the staple honey of this section, and it is a fine honey too. Although this honey-dew is abundant, there is much complaint of bees hanging out on the outside of their hives doing nothing. I attribute this to the heat. I have overcome it in my apiary by piling up supers on my hives until the bees quit hanging out, placing as many as three supers on one hive before any had sealed honey in them. I do not know how this will affect the filling-out of section boxes, but it put an end to loafing in all my hives but one. That one I divided. All my bees are now working in the most approved style, and are just piling up the honey. One of my nearest neighbors has fifteen stands of the Kretchmer pattern, about 10x12, inside measure, and 14 to 18 inches high, with quite small entrances. With their top boxes they resemble, in pattern, a collection of thermometers, and are about as susceptible to heat. In ordinary seasons this neighbor has a good surplus of honey to market; but this season his bees are spending their harvest time in assembling on the outside of their hives. A committee of ventilation, consisting of the entire house, are giving their owner neither swarms nor honey.

Last year I put some swarms in hives with walls two inches thick. They did much better than those in common hives. They even built comb and stored honey in March last. This year I am making hives of two-inch oak plank doubled, making the walls of the hive four inches thick. I put 43 feet, board measure, of lumber into one hive. The lumber costs me only \$5.00 per 1000 feet. If my theory is correct about the bees requiring a comfortable shop in which to do the most successful work. I think my four-inch walls will be a good investment. Flowery, Ark., July 26.

THE EIGHT AND TEN FRAME DISCUSSION; A MATTER OF LOCALITY.

I am quite interested in your new Dovetailed eight-frame hive. I think the difference between eight and ten frames is somewhat a matter of locality—that is, of pasturage. In Passaic Co., N. J., our pasturage is rather poor but quite steady, and thus far I have found

that ten frames give the best result; but I have had good results with smaller hives.

Paterson, N. J., July 30. JOHN PHIN.

[You are correct; locality has much to do with the matter.—Ed.]

BEE-KEEPING IN CUBA.

ITS WONDERFUL RESOURCES; A BIG RECORD FROM A WRITER OF THE OLD JUVE-NILE GLEANINGS.

By Fred L. Craycraft.

Mr. Root:—Having been here long enough to form a definite idea of bee culture and its resources on the island, I take this means of answering some of the letters of inquiry that I receive in regard to bee-keeping in Cuba.

My experience here is that, although the price of honey is less than in the United States, one can produce it enough cheaper to offset the difference in price, as the wintering problem is unknown here, and the advantage of being able to have 400 or 500 colonies in one apiary greatly lessens the expense. Another important point to be considered is the certainty of getting a reasonably good crop of honey; and the bee-keeper can count the number of colonies he has, and be able to tell very nearly the number of tierces of honey he will get.

I have never heard of the "campanilla," or bellflower (the chief honey source), being a failure; and it is not necessary to consult the rain-gauge to find out what the honey crop is going to be, as drouths are uncommon here, and it would take a very severe one to hurt the campanilla-vine.

During nearly three years' experience here I have never found it necessary to feed a pound of honey or sugar; and at the present time the bees are getting enough to work very well on comb foundation, although this is considered the worst season of the year for bees.

My report is as follows: Beginning in Oct., 1891, with 16 colonies, all very weak, none of them having over seven combs, I have increased them to 300 colonies and extracted 58,000 lbs. of honey. I might have got more last year, but did not have time to attend to them as I should have done, and had only about 160 colonies ready for the honey-flow, as I had to superintend the work on a 300-acre farm.

I do wish to say a word in favor of the leather-colored Italians, as my experience proves them to be superior to the five-banded or golden Italians, for they seem to be harder and stronger, and the queens remain more prolific than the others during cool weather, which is very important here as the honey-flow comes during the winter months. I still have some of the "golden" Italians in the apiary, but am replacing them as fast as possible; for the practical honey-producer who wants to see the most gold at the end of the

honey-season must not look for so much gold on the backs of his bees.

The quality of the honey here is excellent, the honey of the flower of the campanilla-vine being of an exceedingly fine, mild flavor. But very little of the surplus honey is dark, as almost the whole crop comes from campanilla, which commences to blossom the last of November, and lasts until the end of July.

If the bee-keepers here would put up their fine honey in such a manner that it could be put on the northern markets as a first-class article, coming as it does when there is no new honey in the United States, it would bring a good price, and would not interfere in any way with the American production.

Nearly all the honey is bought by dealers in Havana who pay but little attention to color or quality, the principal requisite being thickness. Last season the dealers paid only from 3 to 3½ cts. per lb., free of package.

The readers of GLEANINGS would no doubt be surprised if they knew of the many modern apiaries springing up all over the island; but there are so few persons who have had any practical experience with bees, and the scarcity of Spanish bee-literature, that some of the beginners will undoubtedly make a failure. We need practical, experienced men who are not afraid to work; but there are two reasons that will always deter Americans from coming to Cuba; namely, the language, and its being out of Uncle Sam's domain.

In closing, I wish to say to those who think of coming to Cuba that she has the finest climate in the world, and many advantages; but, think twice before jumping.

San Jose delas Gajjas, Cuba, July 28.

[Our older readers will perhaps remember that this same Fred L. Craycraft is one who used to write, when a mere boy, quite spicy and pithy articles for the old JUVENILE GLEANINGS, now merged into the regular issue of the 15th of the month. Although Cuba is no doubt one of the finest, and perhaps the finest, bee-county in the world, friend Craycraft, it seems to us, has made quite a record—from 16 colonies, very weak, an increase of 284, and 58,000 lbs. of honey. Such marvelous yields as this would pay pretty well, even if the honey did not bring more than 3 cts. per lb. Why, that is better than 10 cts. on a fair crop of 10,000 or 15,000 lbs., such as bee-keepers in this country would count as a fair yield. We have asked our friend Mr. Craycraft (we say "Mr.," because we assume he is now man grown) to let us hear from him again.—Ed.]

THE VALUE OF PATENT MEDICINES.

THAT NEW BEE-DISEASE IN CALIFORNIA;
STARVATION THE SUGGESTED CAUSE.

By Prof. A. J. Cook.

Dear Mr. Editor:—You know it is a wonder to you and me that people will buy so much patent medicine. I believe I have the explana-

tion. One feels ill, and, despite the fact that nature must work the cure, and usually finds it hard enough without any added embarrassment, he drinks in the spirit of the age, which urges us to meet pain with medication, and buys and takes the patented stuff. Usually nature is enough for both disease and medicine, and the medicine gets the credit of the cure, when, more likely, it was nature's handicap.

I purchased several colonies of bees, and purposely selected those with the new bee-disease and those that were suffering severely. It was a strange coincidence that those most diseased were nearest starvation's door. I supposed that the disease accounted for the paucity of honey. Well, the first thing to do was to feed, and so I could easily medicate. Fortunately, there were enough cases to use more than one nostrum. One colony was put into a new hive with nothing but empty frames, and liberally fed with fine last year's honey. New combs—fine ones—appeared very quickly, and soon there was an abundance of brood, pollen, (isn't it strange that bees can gather liberally of pollen, though unable to secure any honey?) and stores, but not a sign of the disease. First cure, transfer into a new hive, and feed. No. 2 was simply fed honey with phenol, and this was likewise cured. Cure No. 2, phenol. No. 3 had salicylic acid, and was also cured, and so we have a third remedy. The others were fed only the pure honey, and it is certainly true that they too are all cured.

Now, if I were given to betting I would wager my best hat that the whole trouble was starvation. I may be wrong, but it looks surprisingly like it. The story goes, that a penurious man sought to teach his horse to live without eating. He was succeeding well; but, unfortunately, the horse died just before the experiment was concluded. Have we not been trying a like experiment with our bees? May be I am wrong; but it does look surprisingly that way to me. I have recently examined some colonies quite rich in last year's honey, and find no signs of the malady, while others, in the same apiary, destitute of stores, are much diseased. Our friends, Wilder and "Rambler" saw none of the mortality in their hives—of course, not. Their bees are not on the verge of starvation. They are wise bee-keepers, and as cautious as wise. It was well in my experiments that I tried a variety of remedies, else one might have received undue credit. I wish patent-medicine takers could try such variety of cures all at once. It might be an eye-opener, save to them their money, and, I am sure, nature would have an easier struggle.

Now, if I am all wrong in the above suggestion I hope I shall be pardoned. It is very important. It is certainly true that many colonies of bees in this section must be fed speedily or they will be lost. If fed, I think the fell disease

will soon disappear. It must be remembered that, when breeding rapidly, bees need much honey. When there is but little, some brood must be ill nourished, and the scattering corpses in the brood-combs would result. Some bees might mature and yet be paralyzed, or have a sort of "St. Vitus dance;" and so it may be true that the bee-paralysis, in some cases, may have a like cause. Of this last I am less certain. Mr. Herron is of the opinion that the two diseases are distinct. Some of my colonies seemed to have both maladies; but with full rations both are gone.

Claremont, Cal.

[From the description given by Rambler of this new bee-disease which has been running in California, it is possible it is the same thing that we have had in our own locality, and have in a few of our colonies at the present time. As it has done before for us and our neighbors, we think it will do again—go off of itself. If starvation is the cause, when the affected colonies are supplied with a lot of fresh stores, the disease cures itself, and hence apparently "goes off of itself." But over against this is the fact that we had some colonies at our out-yard that seemed to develop the disease in the height of the basswood flow, and in one of the heaviest honey-flows we ever had; nor did the dead brood manifest itself before that time. For this reason it is barely possible that the California trouble may be quite different from ours, although resembling it in outward appearance. But your experience with medicine illustrates just how one may be led astray. One less careful than you might have tried carbolic acid or salicylic acid alone; and if starvation were the cause, the feeding would, of course, effect a cure, but the medicine would receive the credit.

Now, lest some of our friends may be alarmed at this peculiar malady which may appear among their bees, we would state that the dead brood, while resembling foul brood in color, and in the perforation of the capping, is quite different in character. The skin of the dead larva is tough and leathery, and the tissue milky but not ropy; neither does it have the odor of foul brood; and, moreover, it does not appear to be contagious. See editorials.—ED.]

FAX.

By Ellery Krum.

Why not compromise the kontroversy by settlin' on a 9-frame Dovetailed hive?

Durin' a skeercity of hunny, and when robbers git plentiful, you kin allus introduce a queen safely by makin' the colony broodless as well as queenless, replacin' the brood after the introduction.

Milkweed bloom comes in purty handy at the wind-up of the seezin; but it don't take much to scent up the hull hive with the same flavor.

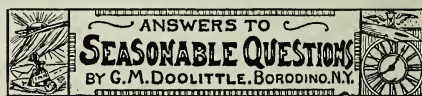
It is natural fer hybrids to be born mean; if you doubt it just give a frame of 'em to a colony of peaceable Italians, and when they hatch out every bee in that hive will ketch the taint of their evil influence.

My friends, you ken help suppress adulterashun of hunny by creatin' a lively home market with the pure artikle. People out here is gittin' educated to knowin' what good hunny is; and when some one imports enny kounterfit stuff it goes off mity slow.

A thrifty layin' queen don't look into every cell when about her work, but gits sort o' keerless at times and deposits eggs in cells partly filled with bee-bread.

Thay is a fixed and immovable rule by which the bee is governed, and all a feller has to do to be successful with 'em is to foller rite in harmony with it. You must not expect any invenshun to work that is made in opposishun to that law.

Slum Gum kep' a stand of bees
Underneath the apple trees,
In a box hive, six feet long;
And the bees 'peared awful strong—
Humped themselves until thay made
Lots o' hunny; then they laid
Sort o' lazy in the shade
Of them trees, till Mister Gum,
'Long in October, went plum
Down to the cross-sticks and he
Tuck out hunny, my-oh! three
Dish pans full; but 'long next spring
Wuzn't left a single thing
Of 'em but old combs and dead
Bees; and yit he skatched his head
And said that he felt quite blue
'Cause thay never wintered through!



BROOD IN THE SECTIONS.

Question.—What is the cause of bees filling the sections with brood, and drone brood at that? What is the remedy for it? I put on one case of sections some time ago, thinking that the bees were crowded for room, and perhaps would be forced to swarm when there was no bloom to sustain swarms, and I find the above result. Would you destroy the drone-comb, or shave off the heads of the drones in the cells? Please answer through your "Seasonable Question" department in GLEANINGS.

Answer.—The querist seems the more surprised that the brood found in the sections was drone brood, while if I should find any but drone brood in sections I should be as surprised as he; for I have yet to see worker brood in sections, unless the colony was a new swarm and commenced housekeeping upstairs, as is sometimes the case where sections filled with foundation are placed on the hive when the swarm is hived, with nothing but starters or empty frames below. Where swarms are hived on empty frames, the sections should not be put on till the bees get well started at comb-building below—say in three or four days after the swarm is hived. But where empty combs

or frames filled with comb foundation are used below, then the sections can be put on at time of hiving the swarm if wished. But as to the cause of the drone brood in the sections, if, as is usually the case with most bee-keepers of the present time, the questioner had restricted the drone comb below, the natural consequence would be drone brood in the sections, if the bees were allowed to build their combs in the sections without the use of foundation, and especially so with a light flow of honey and plenty of pollen; for at such times the bees rear large quantities of brood, and prepare for swarming by starting as much drone brood as is possible, the same being limited only by the amount of drone comb the queen has access to. I gave up the idea, long ago, of having hives absolutely free from drone comb; and if I were to be called to choose between no drone comb in a hive or one full frame of the same, I should say the full frame: for the bees will have some drones any way, and I should prefer a full frame of drone comb, placed in a certain position in each hive, to having a little patch of drones here and there all through the combs and in the sections; for then I know just where all the drone brood in each hive is, and can manipulate it just as I wish. Don't understand, however, that it is necessary to have a full frame of drone comb in each hive; for where I have things just as I wish them, I allow about one-fourth of a frameful to each hive, but have that *all* in one frame, and the frame having said drone comb in it, in a certain place in each and every hive in the apiary. Wandering a little.

If I am willing that all colonies should produce drones, no further attention is paid to this drone comb during the season; but if I do not wish certain colonies to have any flying drones, then I open these hives, at the side where this frame having drone comb is, every 21 days; take out the frame and shave off the heads of all the drone brood, using the same knife which I use in uncapping combs while extracting honey, for the purpose. I have found this plan to be more economical, and less troublesome to the bees, than the use of drone-traps, or, in fact, any other method advocated for keeping down undesirable drones in an apiary. Having given the cause of drone brood in the sections, we will proceed to the remedy.

There are two ways to remedy this matter: and the one which I use most is the filling of the sections with very light section foundation. This keeps all drone comb out of the sections; and where there is no drone comb there will be no drone brood, providing we have a good prolific queen; consequently this trouble with brood in the sections is remedied by thus using sections full of foundation having the worker size of cells. Wandering again.

By thus using sections *filled* with *worker*

foundation, we have very much nicer section honey as to appearance, after the sections are finished by the bees; for the capped combs having the worker size of cells are much more beautiful than are those of the drone size of cells, as all who have compared the two side by side are free to admit. Besides this, we have none of that wavy or washboard appearance in the combs of honey, which we often have where the bees are allowed to build the combs in the sections, as the bees start on the whole surface of the foundation in the sections at once, and thus bring the whole out "bodily," as it were, so that the slackening or increase of the honey-flow does not result in the shortening and lengthening of the cells, as is the case where the combs are built entirely by the bees, especially where black and hybrid bees are used.

The other plan of keeping the queen from the sections is by the use of a queen-excluding honey-board between the sections and the brood-chamber. This will effectually prevent brood in the sections; but such honey-boards are expensive, both in time of putting on and taking from the hive; room for storage when not on the hives, and in the money used in their purchase; or of material from which to make; while they do not do away with the undesirable looks of the finished product in the sections, unless the sections are filled with foundation; and many claim that they should not be used in any event, on account of their lessening the amount of our honey crop on account of the bees being loath to pass freely through the perforated metal. Regarding this latter claim I have my doubts, but consider all of the others as important.

Having given the remedy, what shall be done where we find brood in the sections before we knew of or have applied the remedy or preventive? This all depends upon what stage the brood is in when we find it. If it is found before the brood is sealed over, we have little waste except our time in taking the sections from and putting them back on the hive again; for it is well known, that, if unsealed brood is taken from the bees and kept in a cold place for a week, the same is killed; and such killed or dead brood will be removed by the bees as soon as they have access to it. My plan used to be, before I learned of the prevention as given above, to take sections, found with eggs and unsealed larvæ in them, to the cellar, and there leave them for four or five days, when they were returned to the hives again; and, if the queen did not deposit more eggs in them, they were filled with honey; and when finished were as good as if no brood had been in them. If the brood in the sections had been sealed long enough so that the larvæ have begun to spin their cocoons, then the best thing to do is to cut the comb from the sections; for honey stored in combs having cocoons in the cells is

not just the thing for table use, unless this honey is separated from the combs by the use of the extractor, even though the same be sold as a second or third grade of comb honey, which it would have to be if sold at all, on account of the dark color the cocoons would give to the combs.



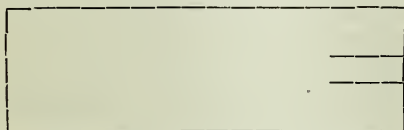
PREVENTION OF SWARMING.

DR. MILLER INVENTS ANOTHER NON-SWARMING ATTACHMENT; HOW TO MAKE IT, ETC.

By Dr. C. C. Miller.

Prevention of swarming is one the liveliest topics considered by bee-keepers nowadays, and I was keenly interested in Langdon's non-swarmers. On trial I found some points about it that were troublesome. I therefore got up one of my own, using, however, the principle on which the Langdon works, throwing all the bees alternately from one to another of a pair of hives. Possibly I may never use it again, but others may like to try it.

The arrangement is quite simple. Two sticks, two nails, two tacks, and a piece of wire cloth are the materials needed, and the size of

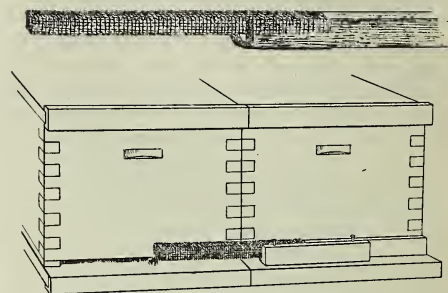


WIRE CLOTH CUT READY TO FOLD.

the sticks and wire cloth may vary greatly, all that is necessary being to have a passage from the hive opening in front of the other hive. For the sake of being definite I will give definite dimensions, and these any one can vary to suit his own notions.

First a pine stick half an inch shorter than the width of the hive-entrance, the other dimensions being 1 inch by $\frac{1}{2}$ inch; then a piece of wire cloth 8 by $2\frac{1}{2}$ inches. At one end of the wire cloth cut two slits $1\frac{1}{2}$ in. long, the slits running lengthwise, and 1 in. from each edge. In order to form the wire cloth into right shape, a special stick should be made. Take a piece of stuff $\frac{1}{4}$ inch square and 8 or 10 inches long. On one end lying lengthwise of the stick, nail a piece $\frac{1}{2}$ inch square and $1\frac{1}{2}$ inches long or longer. Of course, this may be made of a single piece by properly sawing. Now form your wire cloth on this stick. Bend up at a right angle the middle tongue of wire cloth made by cutting the slits, and fold the wire cloth around the stick, crowding the tongue tight up in the angle that was made by the little piece that was nailed on. Bend the projecting part of the

tongue down on the stick. Now slip the wire cloth off the forming-stick, and push into it one end of the stick first mentioned. Don't push it in as far as it will go, but stop short half an inch, and drive a tack into the end of the tongue, and also one into the two thicknesses of wire cloth on the opposite side from the tongue. Those two tacks are all that are needed. The stiffness of the wire-cloth will suffice to keep all in shape.



It is supposed that you have two hives standing side by side, as close as convenient, say with an inch of touching. Now put your non-swarmers at the entrance of one, letting the tube of wire cloth project in front of the other hive. The entrance of the first hive is entirely closed except a place half an inch square where there is nothing to prevent the bees coming straight out. Put the end of your finger against this hole, and the bees can still get out of the hive by going through the length of the tube. Standing to hold your finger there becomes tiresome, so you may close the hole by any other means, and may use one that will at the same time hold the non-swarmers secure in its place. Take a stick 8 or 10 inches long, and of almost any dimensions otherwise, say $\frac{3}{8}$ square. An inch or so from each end of this stick drive in a wire nail of small size, but it must be long enough so that you will drive it clear through the wood and have the point project about $\frac{1}{4}$ inch. After putting your non-swarmers against the entrance, push this shorter stick up against it and push down so as to drive the two nail-points into the bottom-board. Of course, it must fit close at the one end so as to shut entirely the hole that would allow the bees to come straight out through the wire cloth, compelling them to pass out through the tube.

One advantage of this arrangement is, that the free hive is entirely free—nothing to hinder its ventilation, and nothing to hinder the bees going out and in just as freely as though there were no non-swarmers within a mile.

There is no danger of the escape-tube being clogged. It is no smaller at its outlet, and is half an inch square throughout its entire length. I suppose it could just as well be an inch square if desired, for on account of the

position of its outlet no bee would think of going back through it.

The position of this outlet in front of the adjoining hive I count quite an important item. The bees that try to get back into the closed hive will, of course, make their attempt at the accustomed place of entrance; but finding that closed they will not spend much time fussing, but run along the outside of the tube to the other hive.

One thing in the deportment of the bees seemed curious. When a bee came out through the tube I expected to see it fly off to the field, possibly stopping to mark its location. Instead of that, it crawled directly from the outlet of the tube into the open hive. Possibly, however, that may not have been the general rule, for I had not much time to watch them.

I kept two of these non-swarmer in use last year; and if I wanted to continue that kind of interference I can hardly think of any thing I should want better in the device unless it would be to have it a little more substantial; for if a lot of horses should tramp over it some little straightening up would be needed before further use.

Changing the device from one hive to the other is a short job, but not so short as with the Langdon. Mr. Langdon now advises the change to be made every three or four days. Perhaps it would not be a bad plan to change as soon as the bees begin to drag out drone brood; for when drone brood is dragged out it is hardly to be supposed that there is any idea of swarming.

I have seen the fear expressed, that, with the Langdon non-swarmer, much worker brood would be starved. I did not find this to be the case; and, from the bees and brood being kept alive through a week's confinement, it would hardly seem that water is so essential as is generally supposed.

I might have done better with the illustrations before me, but I hope I have made it clear.

Marengo, Ill.

[Dr. Miller has, it seems to us, considerably simplified the Langdon device. Although we have not tried it, we see no reason why it would not do as well as his arrangement.—ED.]



We have the grandest run of honey that there has been for years, in quality and quantity.

Pleasant Hill, Ohio, July 1. H. D. COX.

The honey-yield is great this season. I took about 148 lbs. per colony (spring count) before June 1. Quality, very fine. JOEL A. BARBER.

Chuluota, Florida, June 2.

Bees are doing finely on white clover. Basswood just commenced to blossom, with fine promise of honey.

H. M. BALLOU.

Calumet Harbor, Wis., July 2.

The white-honey crop with me has been fair. It will average about 50 lbs. to the colony; 700 lbs. extracted and 850 comb will about cover my crop.

D. I. WAGAR.

Flat Rock, Mich., July 25.

Bees are doing well. I had 25 colonies come through all right, and have had 8 swarms already; and if it is clear, two or four will come out to-morrow. This is what makes me want foundation.

J. PRICHARD.

Port Norris, N. J., May 7.

Bees are doing finely now here, and it looks as though we should have a No. 1 season now. I have surplus sections all sealed. I was in a gentleman's yard to-day, and he had quite a lot that would do to take off by the last of this week, if we have good weather.

Littleton, N. H., June 25. T. M. STEVENS.

SPLENDIDLY ON BASSWOOD.

Bees have done splendidly on basswood; no clover before basswood, and I don't expect any thing after; too dry for clover, and a poor prospect for any fall bloom of any kind here.

Kickapoo, Wis.

G. W. WILSON.

48 LBS. OF COMB HONEY PER COLONY.

Bees are rushing along rapidly yet. It is getting dry now—a very nice season. They will get about 48 lbs. per colony, section honey. I have one colony that did not swarm, that will crowd 100 lbs. pretty close. S. D. RUTHERFORD.

Kerneysville, W. Va., July, 18.



You can put me in Blasted Hopes this year. Bees in these parts have done comparatively nothing.

T. E. McLEAN.

Thompson's Station, Tenn., July 23.

Bees are not doing any thing at present. We have had no rain for four weeks; white clover is blooming very poorly, owing to the drouth. Crops in general are looking well, but need rain.

J. A. KREHBIEL.

Donnellson, Ia., June 9.

This has been, so far, the poorest year with us that I ever saw. There seems to be no nectar for the bees. I shall not get 50 lbs. of honey unless it comes in better. I have sixteen colonies, and all are strong.

JAMES FRITZ.

Fredonia, Pa., July 25.



He that ruleth his spirit is better than he that taketh a city.
—PROV. 16: 32.

ROBBING SICK PEOPLE.

It is exceedingly encouraging to have such excellent authority as our good friend Prof. Cook back us up so solidly as he does in his remarks on page 655 in regard to wasting our hard earnings in response to traps for the unwary, in the shape of enticing newspaper advertisements of some new patent medicine or useless trap.

We had no swarms at our out apiary, and yet the colonies were boiling over with strength. Why didn't they swarm? Because we gave the bees and queen unlimited room. Oh, yes! it is easy enough to control swarming when running for extracted honey, we know; but when running for comb honey the problem is entirely different. There are lots of ways to do it; but somehow they are either a good deal of trouble or else fail so often as to be practically good for nothing; hence most comb-honey producers will let their bees swarm.

We have just learned from Mr. Francis Danzenbaker, who is visiting us again from Washington, on his way to California, and who has recently obtained letters-patent on a new hive that he has invented, that the Patent Office is divided up into departments, and that each department has its expert who makes a special study of all inventions coming in said department. Well, it seems that bee-keeping was a subject of too small importance to be in a department by itself, and so it was put with—what do you think? *Tobacco-growing!* This same expert, who has charge of all apicultural inventions, is also versed in every thing that has been done in the way of inventions for making cigars, cigarettes, etc. Said Mr. Danzenbaker, with a sly wink, "The Patent Office puts bees and tobacco together; but A. I. R. separates them."

THE BICYCLE AS A DRAY-WAGON.

Yes, we have been using our machine, the Victor Flyer, for that very purpose. We have been carrying down upon our back, packsaddle fashion, two or more hives filled with frames of foundation, so as to give those basswood bees more room. (We wish we had to do it just now.) We managed, on the different trips, to carry nearly a one-horse wagonload, and without any great inconvenience either, except that passersby on the road stared at us as if wondering what sort of "thing" that was, going

along. But we got used to all such, because—business is foremost, and pleasure and conventional ways of doing things secondary.

HALF DRONE HALF WORKER.

The accompanying postal card came to hand, and will explain itself:

Mr. E. R. Root:—I found a curiosity yesterday—a bee with a worker's head and chest, and a drone's posterior parts—no sting; one pollen-basket. This may not be any thing new to you, but I never saw it before. I have read about hermaphrodite bees. The bee has a crippled wing. You can easily pick it out from the rest. WILLIE ATCHLEY.

Beville, Tex., Aug. 1.

The cage came before the card. Upon first examining the bees, we did not notice any thing remarkable; but upon reading the card we find that there is indeed a drone among the bees, having a worker thorax, the legs of a worker, and the tongue of a worker. The only feature that shows he is a drone is the abdomen. It is no larger than that of the worker-bee; but it is rounded at the end, and shows in every respect that it is unmistakably a drone abdomen.

WORKING WITH BEES AFTER DARK.

The robbers have been so extremely bad of late, and not having any old combs filled with honey, which we desired to empty by the slow-robbing plan, we thought we would try working with bees by lantern light. With the aid of an assistant we got along "swimmingly" for a while; but in a short time the temperature of the air began to fall, and the temper of the bees began to rise; and, oh what nasty stings they would give us! They had a fashion of crawling down into the pockets, up the sleeves, etc., until we finally gave it up as a bad job—actually routed from the field. Years ago we worked with bees by night very successfully; but on this particular evening it was any thing but a success toward the last. At first we thought we should get along nicely, remarking at the time that Doolittle and a few others seemed to have a great deal of trouble with nightwork—but we never did. The words were hardly out of our mouth before we began to wish we had not said it, and the result was finally as stated.

SMOKER FUEL—WHAT KIND IS GENERALLY USED?

A CORRESPONDENT of the *American Bee Journal* prefers dry planer shavings for smoker fuel. Our boys use this fuel when they can not get the fuzzy kind of sawdust that comes from sawing out handholes in bee-hives and shipping-cases. This latter we much prefer because it gives a much denser smoke, and burns longer; but planer shavings are more available to the majority of bee-keepers, hence they are more generally used, perhaps, than any other fuel. They are easy to light, and can be had for the asking at any of the mills—yes, bushels and

bushels of them. We notice that many farmers use corncobs; but such fuel is not easy to light unless one has ready access to live coals; and during the summer weather the kitchen stove is not always going. By the way, don't forget that a small spring-top oiler, filled with kerosene, is one of the handiest things to have about in lighting a smoker. Fill the smoker with fuel; send a few squirts of oil upon it; touch a match, and it is going in a jiffy.

Perhaps we ought to state that some use and recommend (among them Mr. Bingham) stove-wood cut up into short lengths; but we never liked this as well as planer shavings or "hand-hole sawdust," for the reason that it does not give as dense a smoke.

THAT DEPARTMENT FOR BEGINNERS.

VERY often what *we* consider old and common property, but which *we* ourselves use with pleasure and profit, is something that many an old veteran does not know of. Many a thing contributed for the special benefit of bee-keepers is used by the veterans. We wonder how many of our readers prize the new department, "Answers to Seasonable Questions," by G. M. Doolittle. While it was primarily intended for beginners, it seems to have much of value to the veterans. Well, here is a sample of what one writer thinks of the department:

I wonder if you have the least idea how much help is got by beginners, like ourselves, in bee-keeping, from the "Answer to Seasonable Questions," by G. M. Doolittle. J. H. SEWARD.

Fulford, Que., Can.

We have felt for quite a long time that such a department was needed; and in December last, our mind turned involuntarily toward Doolittle as the right man, because he is such a careful student of nature—one whose book is the bees themselves; that is, he will watch for hours to find out how they do a certain thing instead of guessing at it, or going to some one else who is considered authority. His notes began with the first issue of this year.

DEAD BROOD: NO MORE BEES OR QUEENS WILL BE SENT FROM THE HOME OF THE HONEY-BEES THIS YEAR.

REFERENCE is made in another column to the fact of our having dead brood in our apiary. As there stated, we do not have any apprehensions that it will make us any trouble, because we think it will go off of itself. Inasmuch as we do not know very much about it, its cause or its cure, we stopped sending out queens from our apiary nearly a month ago, all orders being filled with queens received from the South, or from Neighbor H.'s apiary, which so far appears to be entirely free from this peculiar malady. One colony, in which the dead brood first appeared, seems now to be healthy and all right, and nothing was done but to re-

move the queen and put another one in her place. The queen from the affected colony was put into a healthy one, to see whether she would carry the disease with her; but so far her adopted colony seems to be all right, her brood hatching out as healthy and nice as that from the previous queen. Perhaps many would not consider the course we are taking, of not sending out any more queens from our home yard, as at all necessary; but we prefer to err on the safe side, even though it does stop the revenue coming in from our own yard.

We have been receiving, almost daily, samples of brood, the senders asking whether it was real foul brood or this dead brood spoken of in the July 15th number of GLEANINGS, page 589. Of the two dozen or so samples so far received, only one was foul brood. This shows that the disease is much more prevalent this year than any year we have known of before.

Now, our theory as to the cause of this disease is superheating of the brood. We have had in our locality, and, in fact, all over the country, as you all know, extremely hot weather.* Those colonies that were well shaded do not seem to be affected; and in an apiary entirely in a large orchard, no trace of the trouble appears. Again, we know that the dead-brood disease is making havoc in hot climates, while in the cooler climates, if it appears at all, it goes off of itself without treatment. And, again, the disease is much more apt to appear in very populous colonies, especially if those colonies have a contracted entrance.

PAINFUL STINGS.

FOR the first time in many years we have suffered from the effects of a single bee-sting. We were stung on the fatty portion of the forearm, a bee having crawled up the sleeve. When we felt the sharp pain, of course we smashed her beeship, and thought nothing more about it. But the arm began to ache. In about two hours afterward we investigated and found the sting imbedded in the flesh its full length, and an empty poison-bag. We drew the sting out, and thought, of course, the itching pain would cease. The next day we were lame along the whole right side; and somehow it was convenient to lie down two or three hours, a dizzy or heavy feeling taking possession of us, something akin to that after recovering from a sick-headache. Had the sting been withdrawn *promptly*, possibly none of these effects would have been noticed. We have since discovered that we were stung over a vein; we remember that the pain seemed to be scattered for a few moments over the whole body. If we had been an ordinary greenhorn around the bees, we should not have been surprised; for the fact is, a sting generally has little or no effect beyond

*The Weather Bureau reports this summer as being far the hottest in many years.

the first sharp piercing pain; and as to the swelling, we have had nothing of the sort since the time when we went around barefoot, some twenty years ago.

A COLONY OF A DOZEN BEES.

A FEW days ago we received a dozen bees of the live-banded sort, in a Benton cage, from J. E. Hand, of Eldora, Ia. They were sent to us for our opinion as to their general markings. We pronounced them to be A No. 1 five-banded bees, of course; and, feeling sorry for the little fellows, we pulled back the wire cloth and laid them on the stone sill of our office window. This we have done many times before with other cages of bees; but never before had we known the little chaps to stay by their cage, and hold it as "home, sweet home," for so long a time. Yes, they held it for two weeks, and would protect the mouth of the cage against all intruders. A number of times we jarred the cage to see what they would do. They would fly out and resent the intrusion as quickly as if from a strong colony; and if a robber attempted to come around smelling of their little store of Good candy they would pounce on said robber as if they were defending a home of fifty thousand individuals. Indeed, they would, in all probability, have been there till now—a month—had it not been for several dashes of rain that seemed to wash them out of house and home. If they had had a queen we should not have thought so much about it; but here they were, trying to keep house, with nothing but a wire cloth to cover their poor little heads from the weather—without a queen, without comb, without anything save a small cage that had been sent here with a one-cent postage-stamp.

THE DIFFERENCE BETWEEN A POOR AND A GOOD QUEEN.

AT our basswood yard we had one queen that seemed to have a laying capacity of only about one frame of brood at a time, even at the height of the honey season. When we first saw her we concluded, as she was a young queen she had not had a chance to lay in more than one comb. On a second visit, a couple of weeks afterward, she still had the equivalent of one comb of brood, although basswood honey was still coming in. We had a number of other queens in the yard, which would not only fill out their own hives with brood, but would lay in extra combs as fast as we gave them. We gave these frames of brood to weak stocks that needed a little stimulating and encouragement. "Well," thought we, "we will see what we can do with this one-frame-of-brood queen. Perhaps we can encourage her to do better." So we went to one of the colonies of the good queens, took out four five frames of brood in all stages of growth, and gave them to the colony in question. The bees set up a hum of delight. Three weeks have since elapsed; the brood is all

hatched out, and still there is the one frame of brood. Although this queen was young, we did not fuss with her any more, but pinched her head, and in her place shall be a prolific queen.

SHALL WE GO BACK TO GRANULATED SUGAR FOR A QUEEN-CAGE CANDY?

WE have referred a number of times in this department to the fact that we were, three or four years ago, uniformly successful in sending queens to Australia, and that now we quite uniformly meet with failure. So far as we know, we have used the same kind of candy, made in exactly the same way. Why the difference in results when the cage is identically the same, and the seasons, as they go by, average up about alike? Well, we begin to think it is in the sugar. Our candy that gave such excellent results some three or four years ago was made of what is known on the market as "confectioners' sugar"—a sugar that is used largely for frosting on cakes by the women-folks. Having had such good results, when this barrel ran out we ordered another just like it; but the queens sent on this candy almost all died on arrival at destination. We changed the candy again, with the same result, using the same grade. We have been wondering of late whether this confectioners' sugar was always made in the same way. We have reason to believe it is composed somewhat of starch, from its tendency to turn to lump, and perhaps in some lots they get in too much starch, and, mayhap, something else. Two or three have written us that granulated sugar, from the fact that it is absolutely pure, and can not be adulterated, gives uniformly good results. We are on the eve of trying it again; but meanwhile have received a letter written to Mrs. Atchley by our old friend and correspondent P. H. Baldensperger, who, it seems, sent Mrs. A. a couple of queens which arrived in perfect condition. The nature of her letter will be evident from his reply.

Mrs. Jennie Atchley:—Yours of the 29th June is at hand. I am glad the cage and bees arrived all right. The way of making my candy is most simple. I took common beet sugar; pounded it as fine as possible, then dropped in cold extracted honey till the dough was so firm it would hardly flatten down when made into a ball. Don't you think the double compartment of cage is very good, and, together with the candy, is one of the secrets of success? This is just what I did. Of course, I picked out young bees to accompany, and some full of honey.

Nice, France, July 16. P. H. BALDENSPERGER.

We would explain that the cage referred to is a sort of double Benton, of the larger sizes. Two cages were put together, a small hole connecting them. Mr. B. attributed a part of his success to this cage. The secret of success, in our estimation, is in the candy; for with good candy—that is, one that is perfectly made of the right material—there would be good results in almost any cage.

SHALL WOMEN RIDE WHEELS?

A. I. ROOT IS ASKED TO GIVE HIS OPINION.

Mr. Root:—What is your opinion in regard to women riding wheels? Is there any thing unladylike about it? In some localities many think a woman should not ride a wheel; but I say, if not, *why* not? A WHEELER.

[My good friend, perhaps you have come to the wrong one to answer your question. Two of my daughters ride wheels, and my son's wife rides one; and Mrs. Root expects to ride as soon as she can learn how. She complains that the weather is too hot in the month of July; and if you want my opinion further, it is this: The advantages of the wheel are so great I do not see how women can be debarred from riding. Our daughters have both been greatly improved in health by riding the wheel. They are independent of horses and buggies, stage coaches, and, to some extent, the railroads. While they are gaining in health they do a dozen little errands for themselves, their mother, or friends. Nobody has to hitch up a horse nor put it away; no expense for oats, hay, etc. I know that some say it is well enough for girls, but that for married women it is not the thing. I frequently meet my daughter-in-law about town, making purchases. Sometimes I go with her to the cemetery, where she puts fresh flowers over her mother's and father's remains. The cemetery is fully a mile away. With the aid of a wheel she goes over evenings any time when she feels so disposed. When it is necessary she can visit friends on her wheel, even 20 miles away; and if you want my opinion in regard to how it looks, I answer that I never saw her look more like a picture of health, and what a woman should be, than when on her wheel. As she is rather heavier than our daughters, she was longer in learning how; and some of her friends feared at first she would never learn to ride; but now she gets off and on her wheel easily, and, perhaps I may say, gracefully, and is perfectly at home in the management of it. I do not think she has had a fall since she first commenced while she was learning, and no accident of any kind.

It seems to me that women *must* ride wheels. There is not any need of arguing the matter, for the wheel itself is rapidly settling the question. If it should transpire that this one thing of wheelriding shall of itself result in banishing the foolish fashion of skirts that sweep into all the filth on the sidewalk, then I shall think the wheel has done another good thing in the way of a reform in dress as well as a reform in health.

Please pardon me for saying a word more in regard to the benefits of wheelriding to myself. During this hot July weather I am tempted to think, a good many times, that I am too old to be of much more use in the world; but the wheel cures me of all such notions every time. Yesterday I rode 27½ miles before dinner. The last 7½ miles, over a graveled road, I made in 30 minutes. I arose in the morning between four and five; had no breakfast but crackers and milk, and my favorite apple-sauce. I did not have any nap before dinner—didn't feel the need of any, and, in fact, was not particularly hungry, even though the dinner was a little after my usual time. In the afternoon I rode nearly as many miles more, and came home feeling unusually well, not even feeling tired and sleepy before half-past nine. This forenoon I have felt strong, vigorous, and well—more like riding another 20 miles than doing

any thing else. Instead of feeling the need of any sort of medicine or doctor's stuff, or even stimulants, I have a healthy appetite for plain food and nothing else; and when thirsty, all I want is pure water, or perhaps, when I feel faint, a glass of milk in place of the water.

Now, the wheel has produced equally astonishing results with thousands of other people, as you may perhaps know, besides saving them money by such a cheap method of travel. All this being true, can anybody think of saying that women must be debarred from the use of this new gift that I think came right from the good Father above? The only objection that can be raised is, that some people think it is not ladylike. Oh, yes! perhaps I should add that Mrs. Root says it is hard on women's clothing. This may be true where either a man or woman rides, say, 20 miles a day—that is, if they insist on being well dressed according to the prevailing fashion. If fashion should change, however, so that it becomes fashionable for both men and women to dress especially for, or with the end in view of, facilitating wheelriding, then the last objection will disappear. I do not know what the outcome is going to be. I am waiting and watching, not only hopefully but joyously.



How can one enter into a strong man's house, and spoil his goods, except he first bind the strong man? and then he will spoil his house.—MATT. 12:29.

Perhaps I should say, in the commencement, that the passage above was presented to my attention by our pastor, in a brief little sermonette to the children, just before his regular sermon. He told the children that the figure of the house meant each one of us ourselves—not only our bodies, but our dispositions, our characters, our standing in the community—all these represent the house that it is our business to protect. It takes hard work and a good many years to establish a reputation—a good name, as it is usually termed. Now, there are enemies constantly at work to destroy this house of ours—this human habitation. The enemy is Satan. His work is to spoil and trample in the dust; to ruin; to degrade; and wherever he can find a human being who does not keep watch, or act as a sentinel over the house, he will destroy it. The strong man is the soul—the immortal part that never dies. This soul, conscience, or principle, is watching and defending, and continually protecting the reputation, the good name, the purity, from the attacks of Satan.

The readers of GLEANINGS are doubtless all familiar with the way in which the sentinels of a bee-hive protect the stores within from robber-bees. Since the basswood season has closed, and little or no honey is to be found in the fields, every hive is tested and tried. If the entrance is a large one, robbers will be dodging up the whole length of it; and if there are not sentinels enough along its whole length to hold the fort, down goes the work of the industrious little colony and the commonwealth. Most of you have seen the devastation and ruin that robbers make in just a few hours if the sentinels become overpowered, or if they become disheartened, or heedless and shiftless. They seldom do the latter, however, while there is a fertile queen in the hive. They seem to know

instinctively that there is no need of fighting unless there is a queen to keep their numbers constantly replenished. The welfare of the colony—in fact, the life of it—depends upon vigorous young bees coming on the stage continually to back up the veterans. Sometimes, when there is a robbing mania in the apiary, and we have not got a laying queen to put in each hive, we are obliged to substitute, instead of a fertile queen, combs containing eggs and very young brood. These will give a weak colony new courage; and I have seen them within fifteen minutes change from restless indifference to vigorous and effective warfare against invaders, just because every bee in the colony had been informed of the glad news that there were eggs and young brood to replenish and back up the corps of defenders of the hive. Well, I have seen boys and girls fight against the enemy a good deal in the same way; yes, and I am sorry to say I have seen them give up and let the enemy march right in, and ruin and devastate every thing most holy and sacred in that house. Just think of it, friends—every human being—every boy and girl—must sooner or later begin to protect themselves and drive out invaders. Robbers are all about us. It is just like the bee-hive. If they discover a human being who seems stupid, who does not know better, or who does not care, they march right in upon him at once. I read in a paper of some little boys who could not sleep because it would be Fourth of July next morning. They urged so hard to get up real early, and go out to see the firing, that their good mother finally consented to let them try going out in the world. Almost as soon as they came in sight, some bad boys discovered that they were unused to the streets, and one of these bad boys grabbed a painted tin horn, just because he was bigger than the little fellow who carried it. In a little time they were robbed of all their treasures, and went home with a tearful confession to mamma, saying that she was right and they were wrong. In this case the little friends were too small to stand up for their rights. They were not yet ready to go out into the world without mamma, some older brother, or a proper guardian. A good deal of the ruin of human character comes about in this way. Boys and girls are permitted to visit questionable places, before the strong man within has been sufficiently established to protect them from harm.

Let us now look at the matter with grown-up people. Evil men frequently plan to get a person intoxicated if they wish to rob him. Only last week the papers told of a boy from the country, who sold a load of garden-stuff in the great city of Cleveland. Somebody spied him, and guessed that he was not sharp enough to take care of himself. In a little time he was robbed of all his money and every thing else he had about him that was worth any thing. He told the police, with tears in his eyes, that he drank only two glasses of beer that somebody gave him. In that case the strong man did not do his duty. One need not go to the cities, however, to meet the enemy. He is lurking everywhere. A visit to our jails and penitentiaries will reveal pitiful stories and experiences of how the strong man was bound, first by some pretext or another. Sometimes, like Samson of old, the strong man is led away from his post of duty, and securely bound, by a designing woman. Sadder still, sometimes even *woman herself* forgets to keep guard, or voluntarily suffers the strong man to be bound. The enemy marches in ruthlessly; and, oh what ruin follows then! The very qualities that would make woman and motherhood the protector of innocence, are dragged in the dust.

In my wheel-rides I occasionally pass a great tall chimney in a little country place. For years this great tall chimney poured forth volumes of smoke; and busy workmen have had work day after day for years past. During the last year, however, that whole factory has stood grim and silent. I watch in vain for the smoke over that chimney-top. The whole community suffers. The busy workmen have gone away to find work elsewhere if they can. Do you suggest that they had nothing to do? Why, they had plenty to do. Orders were on hand when the factory shut down, and the business was in a prosperous condition. It was shut down almost without a moment's notice. One of the principal owners was a woman. She had managed well and wisely, and her character was above reproach. Reports, however, had got abroad that this woman was more intimate with the husband of another woman than was necessary. She had been held in such high esteem, however, that nobody believed it until all at once the neighborhood and community were startled by a terrible scandal. There was no evading it this time. The officers of the law had entrapped the guilty parties. One piece of iniquity and crime after another was unfolded; things speedily became complicated; and although the factory had been well managed, and every thing was in trim to go on with a profitable business, it had to be shut down. Its customers went elsewhere, and the expensive machinery is left to rust and decay for want of care. All this comes just because one woman had suffered herself to be bound by the snares of Satan.

Years ago there was a shameful bank failure, and a string of criminal defalcations was brought to light. The bank was all sound, and was doing a good business until the principal officer fell into dissolute ways. I was but a boy then, but I happened to be an eavesdropper one day when I could not well avoid it or get away from the voices near me. Somebody was upbraiding this officer of the bank. I often think of his words. He said something like this, in reply to what was said to him: "I fully realize that my reputation is gone. Yes, I fully comprehend that I have proved traitor to my best friends. I am no more worthy of the respect which my wife and her relatives still extend to me. My name is but a byword and a disgrace to the community round about; and I lost it; yes, I bartered it all for a silly thing I ought to be ashamed of, and that I am ashamed of. If no one suffered but myself, I shouldn't care so much; but it pains me to the bottom of my heart to see the innocent ones suffer—to see those who have been kind to me, and who have befriended me, suffer. I did not mean to bring all this upon me; I never dreamed such disaster could come just because of this folly." His companion spoke lower, and I could not catch what he said; but the guilty one replied: "Yes, I have one of the best women in the world for a wife. I have a pleasant home, and have, or have had, the best people in the world for my friends. There was no reason in the world why I should not have behaved myself and been a man. The best thing you can do is to kick me out of sight, and forget me as soon as possible."

I have reason to think that this man soon committed another crime—a worse one than all that had gone before—a crime that he intended should be murder. He nearly lost his life in the attempt, and died not very long after, suffering terrible agonies, both of body and mind. And those who suffered by his downfall are scattered throughout our community even yet. All this came about by giving way to temptation—by permitting the strong man of the

house to be bound and rendered helpless by letting *impulse* and *passion* rule instead of conscience and manhood.

Perhaps, friends, some of you may think I do not know what it is to be tempted. Maybe you think I do not have desires and impulses, like the rest of you. It is not true.

A few days ago, in traveling over that nice gravelled road between Cuyahoga Falls and Hudson, O., I made $7\frac{1}{2}$ miles in 30 minutes, with my new 24-lb. wheel. That is not very much for one of the *boys*, I know, but I felt rather proud of it. After paying friend Terry a visit I started back. The wind was at my back, I had just had a good dinner, and felt very much like making speed. Just ahead of me was a smart young horse. The weather was very dry and hot, and even on this gravelled road the horse and buggy stirred up a little dust. I started to go by, as I usually do, but the driver accosted me something like this: "See here, my friend, may be you can go by us and may be you can't. But let's be fair about it. Here, I will give you the smoothest part of the road, and I will not get in your way. Now, sir, go ahead and put in your best licks." He seemed so pleasant and fair about it that it did not occur to me at first that I should be racing. You know how I have stood out, both in teaching and practice, against any thing in the line of racing or gambling. Yes, even when Huber urged me to go to the wheel-races to see him ride, I preferred to be excused. As his mother thought it was an almost harmless amusement, in the way it was conducted, I consented that Huber should go if he chose; but I felt that I could not conscientiously go, even with the boys, to the fairground, where they were to test their wheels and muscles.* Let us now go back to the gravelled road.

I was so sure I could get ahead of the young horse that I did not try very much; but I gradually gained on him till I got ahead and then slacked up, as it seemed to be only a pleasant, good-natured test of what a modern wheel could do. He was not satisfied, but wanted to try it again. The horse was now getting warmed up to business, and it took a little more muscle to get ahead; but I finally left him far behind. I slacked up again; but I gathered from his manner that he was a little put out, perhaps to think that an old gray-haired man like myself should outrun his horse. He seemed to be trying to do something to that horse—I could not exactly understand what. But very soon the horse started to pass me on a gallop. I had heard the boys say that very few wheelmen could distance a horse on a dead run; but I had gone by so easily before, I thought I would just try it. I had work before me now in dead earnest. The horse kept going faster and faster, till he was bounding like a runaway. The strokes of my feet on the pedals were also getting faster and faster, and the light steel 24-lb. racer was quivering and twisting with the force of these heavy strokes like a willow whip. I was getting somewhat near to the limit of my strength; but I felt pretty sure that, if I would make one more desperate effort, I could beat the horse, even on a run. We were going at a speed that was terrific—at least, it was terrific

so far as my experience went. The man was evidently vexed because I had beaten him twice, and he was urging his horse on at a mad rate. Of course, I was excited. Any one who has Root blood in his veins will tell you that a Root would die before he would be beaten—that is, if he were to let *impulse* and *passion* rule. Just here conscience began a remonstrance. It seemed as if I could hear the voices of both Ernest and Mrs. Root saying something like this: "O father! father! what *are* you thinking of? and do you *realize* what you are doing?" I slacked up and let the man go by. Maybe he would have gone by any way. I was not very much tired, and my strength was not exhausted. A dozen times I meditated even yet showing him what I could do. But I knew it was not right. If we had been going through a town where spectators were along the road, it would have been the most natural thing in the world for bets to be started. Some would bet on the horse, and some on your humble servant. God forbid! Nobody shall ever bet on me, or on any gift of brain or muscle that God has given, if I can prevent it. Had any thing broken about my wheel, or had even a screw come loose, it would have been broken bones or death. In fact, several deaths have resulted already from some accident in wheel-riding in this way. But that is not the point just now. It is the gambling and racing mania that we need to consider a little; or, if you choose, in the language of our text, it is the matter of letting passion and the racing-craze bind the strong man so that the poor victim really does not realize what he is doing, or, may be, is hardly responsible after he gets started. It is the same with all other kinds of sin. We get into it unconsciously. Again, I am not only a professor of religion, but I am a deacon in the church; and yet, there I had been straining every nerve in my body for—what? To get *ahead* of a man—a brother! Why, he too may be a deacon, for aught I know. Probably *not*, however. You see, I am condemning myself by my own actions. Well, I was quivering in every nerve to get ahead—to get ahead of my neighbor—ahead of that stout young horse trained for racing. I really do not know much about such matters, so I may be mistaken; but this spirit of wanting to get ahead of others—of your neighbors—what sort of spirit is it? How does it harmonize with that text I have so fondly repeated and quoted—"not to be ministered unto, but to minister"? How does it harmonize with the spirit our Savior taught among the poor and lowly? I hardly need tell you that this whole matter of racing, gambling, prizefighting (and it all hangs together, dear friends), is about as far off from the real spirit of Christianity as any thing can well be. The gambler, instead of following the injunction, "Do good, and lend, hoping for nothing again," grabs from his neighbor without giving him *any sort* of equivalent; without conscience or scruple he takes a poor man's hard earnings—the hard earnings that are needed to furnish his wife and children with bread and clothing, and he appropriates the same to himself. His whole aim in life is to get *ahead* of his fellows—to get above them by crowding them down and back. If God has given him strength of muscle, he uses that strength to wrest the hard earnings from the weak and defenseless, and yet he grows into this state of heart by easy steps. The whole attitude of the people engaged in our recent strikes has been so far off, and so far from the spirit of Christ, and seemingly so oblivious of the fact that Christianity is in our land at all, that one may wonder whether they ever heard of the Bible or Christian teachings. Such is the result of letting this world

*Perhaps I might add that Huber did come out ahead in two contests among boys of his own age—one for fast riding and the other for slow riding. By my advice, however, he refused to accept any prizes. I told him that, if I were in his place, I would not accept of even a doughnut or a stick of candy. Suppose, however, some of the spectators should choose to bet on the boy's strength and skill. Here is the trouble, friends. If you engage in any contest, you may, without knowing it, encourage the gambling and racing mania.

and worldly things bind the strong man or still the voice of conscience.

In the same chapter from which I take my text there is a beautiful verse describing the character of Christ Jesus; and it should also, dear friends, describe the actuating spirit of his followers. Let us read it: "He shall not strive nor cry, neither shall any man hear his voice in the streets." Perhaps some may think I am making too much of a little matter. They may say it is right and proper to test the speed of horses or of wheels. Well, I agree, providing the matter can be managed good-naturedly and without *strife*. In the contest above, I think my friend lost his temper when I came out ahead. Of course, I was pleasant and good-natured while I was the victor. It is easy enough for the man who *wins*, to look pleasant. When the circumstances were changed, however, and the horse ran ahead of me, I tell you it was a pretty hard tussle for me to give up. I was relating the circumstance to a lady. She is a cousin of mine, and has the Root blood in her veins. She too is a professing Christian. When I told her about it she declared that, if she had been in my place, she would have gone ahead of that horse if it had been a possible thing; and as I go over the matter and think of it, my blood yet tingles, and one part of myself seems to feel sorry that I gave up; but the better part—the *manly* part and the *Christian* part—says most emphatically, "Get thee behind me, Satan."



ON THE WAY TO LAKESIDE.

In riding a wheel we need not go over the same ground unless we choose—that is, at a season of the year like this, when the roads are all passable; and I always make it a point to go one way and return another, in order to study the country and see more of God's gifts to his children. As there is an electric railway from Norwalk to Sandusky, I decided to run directly from Medina to Norwalk, and then, if tired, I could ride a portion of the way. By consulting my pocket-map I discovered that East Townsend, where H. K. Boardman resides, is a little north of Medina; therefore I took a diagonal bearing northward until I reached a point directly east of East Townsend. Then I selected an east and west road and followed it straight ahead for about 30 miles, and was pleased to find myself right before friend Boardman's door. By consulting the parallels on the map you can follow an east and west road pretty accurately; and I was pleased to find that a cheap pocket-map of Ohio was accurate enough for the purpose, and to find also that our east and west roads are laid out exactly east and west. I started at 7 o'clock, and had made something over 40 miles just as friend B. and his people were sitting down to dinner. His pretty home looks just as neat and tidy during our intense drouth as it does at any other time of year; and although he has but little basswood, comparatively, in his locality, he has, as usual, a crop of something over two tons of beautiful basswood honey. His bees were fed as usual, so as to have every colony full and strong when the honey flow opened. As the day was very hot, the bees were exceedingly busy taking water from a feeder of his own invention. He uses it for giving them

pure water, or for giving them sugar syrup or any thing else he chooses. They are made of half-gallon fruit-jars, on the atmospheric principle. But he has an arrangement so that he can lift any one up to be replenished, and put it back, without injuring a bee. He also uses it as an entrance feeder, without having any unpleasantness, even though he was feeding thick sugar syrup right during the middle of that hot August day. His crop of honey hangs overhead in the room where he winters his bees. The room, although above ground, is as cool as a cellar, during the heated months of July and August.

After chatting until nearly time for the electric train to leave Norwalk, I started ahead. On reaching there I was informed that the electric car would not receive my wheel unless it happened to be one that had a freight car along with it. I asked what speed they made, and found I could pretty nearly equal it with my wheel, make a sure thing of my passage, and save my money. In all such cases, the simplicity of a wheel commends itself. In coming home on the same route I was informed at the office in Sandusky that it would be an hour and a half before any cars would leave Norwalk; and as 16 miles is not a big ride for that length of time, I found I could make the trip while I was waiting for the car.

Up toward the lakeshore we meet with a serious obstacle to wheeling, in the dry loose sand. By a piece of thoughtlessness I took in a strip of this soft sand for about two miles; and had it not been for the experience and drill that I told you of a year ago in coming from Akron after dark, Saturday night, I fear I should have had to walk the whole distance. And, by the way, when I tried hard that night to remember the Sabbath day to keep it holy, I made a big investment that I did not know of, in learning to ride through sand. One who has had little experience would declare the thing to be impossible; but I think I could manage to get through almost the worst piece of sandy road we have here in Ohio, without getting off my wheel; but it is hard work, and it does not pay unless you happen to get caught. Inquire ahead, and avoid sandy roads where possible.

I reached Sandusky just as the evening boat was preparing to leave the wharf, making 66 miles in about 7 hours, that being the longest ride I had ever made in one day. I wanted to make Port Clinton before going to Lakeside; therefore I purchased a ticket to the nearest point to Port Clinton, leaving the clerk to decide what point that should be. They landed me on Catawba Island. For a time I was somewhat concerned; for what can one do on a wheel on an island? Somebody kindly informed me, however, that Catawba Island is attached to the main land by a bridge. Catawba Island is at present the center of the great peach industry. When I arose next morning at the peep of day a sight met my eyes that was worth the whole trip. Beautiful luxuriant peach-trees were growing everywhere. The leaves were not curled, and the trees did not have gum oozing out of worm-holes. In fact, the trees were all healthy and sound, and models of thrifty luxuriance. Some of the trunks were as large in diameter as fair-sized apple-trees, and the heads are usually trained so as to be about evenly balanced. Each trip the steamer makes, it carries away great loads of baskets of beautiful peaches.

Catawba does not seem to be a town—at least, there were no houses except great boarding-houses. They are not hotels, for there is no sign out—at least, I did not see any; and I understand they are mainly for visitors, who use it as a pleasure-resort. There were former-

ly great quantities of Catawba grapes raised here; but they are now cutting them out and putting in peach-trees instead. The trees are planted between the rows of grapes, and the latter removed when the trees begin to bear. One of the passengers asked me what I supposed they called those peach orchards worth an acre. I guessed two or three hundred dollars. He said the orchards along the lakeshore, in full bearing, were valued at from two to three thousand dollars per acre. Surely, farming *does* pay—at least, some kinds of farming. Even away back from the coast, he said, the orchards were frequently sold for from five hundred to ten hundred dollars per acre. I supposed that we should, of course, have peaches on the bill of fare; but one of the guests told me they would have no peaches while they were so high-priced as at present, fine early ones bringing \$2.00 and upward per bushel by the wholesale. I greatly enjoyed my ride through the great peach-groves, some of them comprising several thousand trees, and so on through to Port Clinton.

It was at the latter place that I had a pleasant visit with our friend Julius Johannsen, who has written somewhat for these pages. The drouth has been unusually severe in his locality; in fact, great cracks or fissures showed themselves in the rich black ground comprising his garden. He had an opinion that it was not of much use to cultivate while the weather was so very dry; but I felt quite certain he could stop the ground from cracking and get tolerable crops by keeping two or three inches of the surface soil stirred constantly, and kept fine and mellow. This is the secret of their raising crops without irrigation, in California; and, in fact, the finest peach-orchards on Catawba Island are cultivated so constantly that the ground was as fine and mellow as a posy-bed, and not a weed was to be seen.

Of course, there is not any honey when months pass without any rain. If I am correct, friend Johannsen has not yet taken a pound from his hives. His ground is nicely underdrained, and he is getting small fruits well started. His land is a little outside of the peach locality; but plums do beautifully, and he has something like 200 as handsome and thrifty trees as I ever saw. His plum-orchard is well-cultivated, and the earth is kept fine and loose.

A beautiful graveled road runs from Port Clinton to Lakeside. Just a word here about graveled roads. Through the sandy regions of the northern part of the State of Ohio I have been delighted to find some of the finest roads for wheeling that can be made. In fact, one can make better speed on them than he could on a road made of planks, paving-stones, or even sawed flagging. None of these can be laid so that there is not an unpleasant vibration as the wheel goes over the joint. With the graveled road, however, there is no break and no jar. It may be undulating a little, but these undulations are like the waves of the sea; and one feels, while riding at high speed, as if he were on the water. I have found the finest roads in Marion County. There they have also a soft dirt road at the side of the graveled road; and in summertime some of the teams—sometimes all of them—take the dirt road in preference to the hard gravel; this leaves the well-built and expensive road entirely for the wheelmen. As the surface of the road is made crowning, the summer rains wash off all soil, dust, and trash, and the rubber tires strike nothing but the smooth, unyielding graveled surface. One day, after plowing through sand and dust I struck one of these graveled pikes, with a pretty good wind at my back. It seem-

ed like flying; and I pretty soon discovered that my rate of speed frightened the teams in the adjoining dirt road, and therefore I had to slow up in passing. I once had an opportunity, however, of running four miles without any thing to hinder; and as I looked at my watch it showed that I made the four miles in ten minutes. I do not think this can be, however. I must have made a mistake of about five minutes in looking at my watch. In making these fast runs, the chickens from the farmhouses are a great annoyance—not so much those that happen to be in the way, but those that get frightened by such an unusual sweeping apparition. I don't know what ails chickens' sense. Instead of running *out* of danger, they seem bent on running *into* it. They will manage to get right before your wheel, even if they have to run several feet in order to get there; and they will squall, and make the gravel fly with both legs and wings, in an insane attempt, apparently, to beat the wheel in a straight run. Of course, we do not want to hurt them; and I hope no wheelman is guilty of running over chickens when it can be avoided. If it can not, I think he had better offer to pay a reasonable price for the damage done.

By the way, where there is not a graveled road, there is now scarcely a road in Northern Ohio where the wheelmen have not apparently chosen a path on either one side of the road or the other. After one wheelman selects a fair runaway, all the rest seem to follow by general consent; and the more the wheel-track is used, the firmer and smoother it becomes. Where the roads are very sandy, in a little time a very good path (a very *narrow* one) will be made right through the grass on the roadside. Such a path is not hurt at all by foot-passengers. In fact, the more it is used by the barefooted boys and girls on their way to school, the nicer it becomes. It is a great mistake, however, to let horses get into the wheelmen's path. I judge that something will soon be done for the protection and encouragement of a way expressly for wheels, where they will not interfere with other travel, and where other travel will not interfere with them.

In our next issue I will tell you something about my exceedingly pleasant visit at Lakeside; but I wish to mention one little incident right here. At one point on my ride I saw a fellow beating a poor old horse unmercifully. Without thinking of the consequence, I turned my wheel into his barnyard and was standing by his side so quick that he hardly knew where I came from. I asked him to stop whipping his horse. He was mad at my sudden intrusion, and refused. When I got out my pencil, however, and told him to please give me his name, he cooled off a little. He said the horse came very near running over his little girl, and he was going to teach it not to do it again. I told him I was a Christian man, but I believed in *law* as well as *gospel*, and that, unless he would give me his promise not to whip the horse any more, I would feel obliged to teach him something about the law. He finally promised, and, to make sure he would keep his promise, I told him I would ask a neighbor to keep watch of him; and if he whipped any more horses in that way he would be called to account. The neighbor told me that this man had been fined, several months before, for whipping the same horse. Now, here is a suggestion: Have such men put under this kind of bonds for good behavior. It may be best for *several* of the neighbors to join hands, in some cases.

Every thing is O. K. That Crane smoker is a dandy.
THOS. MYERS.

Carsonville, Mich., May 22.



THE STERLING STRAWBERRY, ETC.

Mr. Root:—I do not know what to think of you, after the praise you bestowed on the Sterling strawberry, in former issues, especially those very delicious ones you have so much enjoyed at friend Terry's, and then have you in your July 1st issue announce that you had concluded to drop it from your list, and would re-instate a former discarded variety which had about all the good points of the Sterling. It would look as though the Sterling wasn't much of a berry after all, even though you had so praised Mrs. Terry's canned ones. Perhaps others, like myself, have been influenced by the praise you formerly bestowed on Mrs. Terry's canned Sterlings, and concluded that it was the berry for them to plant. How is it, friend Root—were you deceived, or were you almost too lavish of your praise? A. D. P. YOUNG.

Ashtabula, O., July 16.

I hardly feel like pleading guilty to either charge, friend Y. The Sterling is an excellent berry, and it seems like parting with one of my children, almost, to give it up; but there are altogether too many strawberries recommended. I saw a catalog recently where one man offered something like 100 different varieties. It is trespassing on good nature and on a suffering public to inflict so many on them, even if all are good. Matthew Crawford originated the Sterling a good many years ago. It gave considerable promise, and he sold it for quite a little sum of money. Either it did not seem to please generally, or else the new owner did not push it; because, for some reason or other, it fell back out of sight. But Terry got hold of it; and as it suited him exactly for a berry to can, he gave it prominence. After our strawberry-book was out I discovered that this berry was very little known; and I also found that it was in many respects much like the Warfield. The latter is generally known and widely disseminated; and after I had dropped it I discovered that it seemed to be a general favorite all over the land, although, as E. C. Green told me to-day (we were out on a wheel-ride together, looking at the nice gardens and farms of Medina County), the Warfield does not seem to do its best every year. Now, the point is this: The Warfield is already well known, and is in the hands of most of the strawberry-growers. This is true to such an extent that the Ohio Experiment Station, in a recent bulletin where they gave a list of old sorts to be recommended, mentioned the Warfield *first of all!* In view of this, I think it was unwise to drop it. Now, as the Sterling has hardly been introduced, and is very little known, was it not wise on my part to make the exchange I did? By the way, I should be very glad indeed to get a report from those who have purchased Sterlings. It is too sour a berry for most people, unless they want one specially for canning; and it is not nearly as productive, if I am correct, as the Warfield. I may add this much in its favor: While visiting at Mr. L. B. Pierce's I asked him what he thought of the Sterling; and, if I remember correctly, he said it was one of the best berries in the world; and then he showed me a row of them, larger and finer than any I have ever grown on my own ground, up at one side of that strawberry-patch, on the edge of the woods. We must sift our great number of varieties, and choose a few of the

best. Of course, anybody who has a special fancy for it can hold on to it as long as he chooses. Let me quote what the Ohio Experiment Station says in regard to old varieties:

"The best of the old varieties are Warfield, Burbach, Crescent, and Haverland; and no variety seems to have been found that is likely to supersede them."

THE TIMBRELL STRAWBERRY.

In my recent review of strawberries, after it was in print I feared I had been a little too severe on the Timbrell. A report from our good friend Crawford, of Cuyahoga Falls, gives an explanation to the white tip during this present season; and as there are several other valuable points, we give the report below:

It has fruited here twice, and I am glad to report that the plant is all that can be desired for health, vigor, and productiveness; and it is certainly the latest of all so far. The fruit is very large, usually of good shape, and of excellent flavor. This season it failed to ripen uniformly with me, remaining white on the under side when red above. I think this was owing mainly to the extreme heat, and perhaps in some measure to the fact that the soil was sandy, and no mulch was applied. A grower a few miles from here says that his colored up all right. In this connection it is but fair to say that the fruit is of fine quality before it colors all over.

I have received reports from various quarters, extending over a wide area, and some of them place it at the head of the list. A correspondent in Colorado tells of ten berries that made a heaping quart, and weighed 21 ounces. Another in New Jersey, who has had it several years, considers it the most valuable variety ever introduced.

We also extract from friend Crawford's July report the following excellent suggestions in regard to planting strawberries generally, in the fall:

FALL PLANTING.

The soil for strawberries should always be rich, and this is especially necessary for fall-set plants, as they can not send their roots to a great distance in search of food in the short time in which they have to grow. Old, well decomposed stable manure is excellent, and plenty of it should be used. It is well to apply it after the land is plowed, and then harrow it until the horses have stepped on every square foot. If the bed be small, the manure can be worked in with the hoe. The soil should be made firm before the plants are set. This will help keep them from being thrown out by the frost. If one is planting a large patch, which is seldom done in the fall, it is well to roll the soil. This not only makes the bed firm and smooth, but also enables one to see just where the surface is, and to set the plants at the proper depth. In planting a small bed, my plan is, to stretch the line where the row is to be, and spat it down with the back of a spade. This gives a smooth surface, with the impression of the line for a guide. If the soil be dry, I cover the surface around the plants with a mulch of some kind, and give one thorough watering. An excellent plan is to cut some grass when it is short and green, and scatter it all over the plants. This gives them shade just when they need it; and as the grass dries up they become strong enough to do without shade.

AN ONION ITEM FOR MR. ROOT.

My potato onions, which were badly frozen at Easter, made a very good crop, and, besides, made an effort upward as well; to wit, four or five of the sets sent up stalks, each bearing about five little onions. Though I have grown the potato onions a good many years, this is the first instance of that kind that has occurred, or that I know of. In each case it was one of a bunch of sets, and not a large onion, that did this. These little top onions were not ripe when I had to take up the onions; but I am sorry that I did not try to ripen them and see what they would produce, as I may never have another chance.

M. S. PERCIVAL.

Rugby, Tenn.

[Friend P., I have never seen the potato onion nor a multiplier send up a seedstalk; and I have been glad to think that we have one variety that we could feel sure would not bother in that way; therefore I do not believe I would encourage very much such a heterodox proceeding. Our white-top onion-sets, a few of them, sent up seed-stalks and produced sets. Whether it was the large-sized ones that did this or not, I can not tell.]



DOVETAILED CHAFF HIVE.

In Trade Notes for July 15 we described this hive with the new deep telescope cover overlapping the rim. Some may want to secure these hives to put their bees in for winter. The price of the hive-body and telescope cover, without any inside furniture or chaff to pack with, in flat, including nails to nail up with, in lots of 5 or more, \$1.00 each—30 cents for the cover and 70 for the hive without cover. In next issue we will give a new list of prices on these hives and others, including inside furniture. Less than 5, add 15 cents each extra; and if nailed, painted, and chaff-packed, add 30 cents each.

DOVETAILED WINTER CASES.

These are shown on page 24 of our catalog. They consist of a body 17x23 inches inside, 1 1/4 deep, with padded sticks for the lower edge—a large telescope cover about 7 inches deep overlapping the body. This gives ample room for packing and cushion. Price of these cases complete, in flat, including nails to nail them up, 65 cts. each; lots of 10, \$6.00. Nailed and painted, 15c each extra, in same quantities. These cases, while designed especially for the 8-frame Dovetailed hive, are plenty large enough to go over a 10-frame L. hive of any style which does not have a portico or other similar projection from the outside.

60-LB. SQUARE TIN CANS.

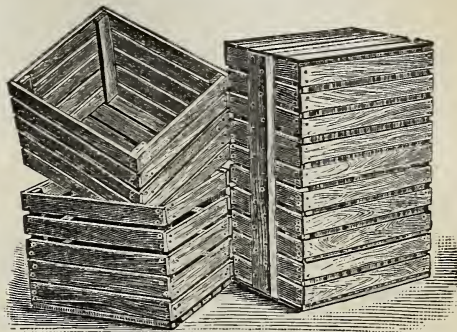
We are prepared to furnish these from St. Louis, Mo., Conneaut, O., or from here, at 75c per box of 2 cans, with 1 1/4-inch screws; \$7.00 for 10 boxes. Lots of 50 or more boxes at 65c. The same can, with a 4-inch cap in addition, 10c per box extra. Pack 2 one can in a box, at 50c per box; \$4.20 for 10, or 40c each in lots of 50 or more; 5c extra if the 4-inch cap is wanted. Screw-cap honey gates, to fit 1 1/4-inch cap, for regulating the flow of honey from these cans, 15c each. If you order these gates at a different time from the cans, send a cap like the one you want to fit; or say when and where you got the cans. The screw caps vary a little in size from different factories.

STRAWBERRY-PLANTS IN AUGUST.

We are now prepared to furnish Jessie, Parker Earle, Michel's Early, Bubach, Edgar Queen, and Haverland, at the uniform price of 15 cts. for 10; 75 cts. per 100, or \$6.00 per 1000. If wanted by mail, add 5 cts. for 10, or 25 cts. per 100, for postage. Postage to Canada will be double the above prices. The first three are perfect varieties; the remaining four are imperfect. Michel's Early we recommend as a fertilizer for all of the extra early varieties. We can also furnish Timbrell, nice strong plants, at three times the above prices. The Timbrell is also imperfect; and were it not for the fact of its mottled appearance on the tip when it is ripe, it would probably be one of the leading strawberry varieties of the present time. Another season may decide how much of an objection this is to the plant. Those who have not had experience in fall planting, had, perhaps, better order a few at a time, until they are sure they can make them grow. We feel certain that fall planting—that is, the plan of putting in strawberries on all your rich ground as soon as it is vacated—is getting to be more and more of a success; for we are filling orders, not only for tens, but for hundreds, and, with some, for

thousands of plants, to be put out in the hot months of July and August. Of course, during a severe drouth you will have to water them a little when first put out; or practice on a few at a time until you know just what is necessary to make them live, and then plant more largely as you gain experience. Our experience is, that, if you are going to plant in the fall at all, the sooner you can get your plants started, the better. Not only every month but every week counts. Strawberries are a hardy plant; and the cool weather of fall, even clear up into October and November, seems to be the most favorable time for growth.

BUSHEL BOXES.



The above cut shows our popular *all-slatted bushel box*. We have two other styles; one has slatted bottom and sides with solid ends in three pieces called the *slatted bushel box*. The other has solid ends and close bottom and sides, and is bound with galvanized iron and called the *galvanized bound bushel box*. These boxes were devised by T. B. Terry for handling potatoes, for which purpose nothing could be handier. The potatoes are picked up into the boxes in the field and left in them till sold. Other crops, such as cucumbers, tomatoes, and apples are being handled in these same boxes. They are of such a size that two go crosswise in an ordinary wagon-box. Outside measure is 14 1/4 x 16 1/4 x 12 1/2 deep, and they hold a bushel of potatoes level full so they can be piled one upon another. The above cut shows two *all-slatted* boxes nailed up, and a bundle of 15 alongside; 13 of the 15 are in the flat, packed inside the other two, and nails of the proper kinds are included. The *slatted* and *galvanized bound* boxes are put up in the same way, except there are only 12 in a package instead of 15. Each package weighs about 85 to 90 lbs.

PRICE LIST.

All-slatted bushel box, per crate of 15..... \$1 50
Slatted bushel box, per crate of 12..... 1 50
Galvanized bound bushel box, per crate of 12..... 2 10

In lots of ten crates, 5 per cent discount will be deducted. Price each, nailed, 15, 18, and 22 cents, respectively. A 20-page pamphlet called *Handling Farm Produce*, telling all about these boxes, mailed free on application.

KIND WORDS FROM OUR CUSTOMERS.

GLEANINGS beats them all for advertising.

Bristol, Vt., June 21.

A. E. MANUM.

I am using your make of hives and sections this season. They are the best and finest I ever saw.

Orchard, Col., July 26.

J. W. HACKNEY.

Over a year ago I purchased a 7 drawer sewing-machine from you, and it has been in use ever since; and I wish to say that we are pleased with it. My wife says she can not recommend it too highly, and can cheerfully recommend it to any one wishing a first-class machine at a moderate price. I can say the same about the mower.

Northville, Mich., July 7. SAMUEL WILKINSON.

Queens! Queens!

Now ready by return mail.

Bred in full colonies from the best honey-gathering strains in the country. All queens warranted purely mated, and safe arrival guaranteed. I have three distinct strains—golden yellow and dark leather-colored Italians, also Albino.

Tested, each.....	\$1.50
Tested, per ½ doz.....	7.50
Warranted, each.....	.75
Warranted, per ½ doz.....	4.00
Warranted, per doz.....	7.50

Send for 44-page descriptive catalogue.

W. W. CARY, Colrain, Mass.

5-Banded Untested Italian Queens

For the balance of the season at 50 cts.; tested, \$1.00; breeding-queens, the very best, \$1.50. These are Doolittle's strain, and are golden beauties. Fine tested, from imported Italian mothers, 75c. Safe delivery. Money order office, Decatur.

Cleveland Bros., Stamper, Newton Co., Miss.

Will you please mention GLEANINGS?

STRONG, FULL COLONIES

of Pure Italian Bees, in Root's new Dovetailed hive, after June 1, only \$4.00 each.

N. A. KNAPP, Rochester, Lorain Co., O.

Bees and Queens.

I am now prepared to fill all orders on short notice at the following low prices:

Untested queen.....	\$ 75
6 untested.....	4 00
1 4-frame nucleus.....	1 00
1 3-frame nucleus.....	2 50
Bees by the pound.....	75
1 to 5 colonies.....	6 00
Queens wanted with nucleus, add price.	

E. A. HARRIS, No. Petersburg, Renss Co., N. Y.

Tested Queens,

Raised last fall from my choice Italian stock, yellow and unsurpassed workers,

75 cts.

Ready to ship now. Hybrids, 25 cts.

J. A. GREEN, Ottawa, Ill.

World's Fair Medal

Awarded my *Foundation*. Send for *free samples*. Dealers, write for wholesale prices. Root's new *Polished Sections* and other goods at his prices. *Free Illustrated Price List* of every thing needed in the apiary. **M. H. Hunt.** Bell Branch, Mich.

TESTED ITALIAN QUEENS, \$1.00 each; selected, \$1.50; untested, 65 cts. Two-frame nucleus, with tested queen, \$2.00; with untested queen, \$1.50. Queens ready April 1.

Stewart & Cooper, Quebec, Tenn.

TAKE NOTICE!

BEFORE placing your orders for SUPPLIES, write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc. PAGE & KEITH, 85tfdb New London, Wis.

BBB'S!

If you keep **BEEES**, subscribe for the *Progressive Bee-keeper*, a journal devoted to Bees, Honey, and kindred industries. **50 cts. per year.** Sample copy,

also a beautifully illustrated catalogue of Bee-keepers' supplies, **FREE.** Address **LEAHY MFG. CO., HIGGINSVILLE, MO.**

Golden Italian Queens.

½ doz. untested queens.....\$4 00

1 doz. untested queens.....8 00

Fine queens for breeding purposes 3 00

Sample of bees upon application. I can please you. Send a trial order.

J. F. MICHAEL,

German, Darke Co., O.

In responding to this advertisement mention GLEANINGS.

Mother Bees.

If you wish the best of queens, or mother bees, send me your orders. Untested queens, 3 or 5 band, 75c each; \$4.25 for 6, or \$8.00 per dozen. Tested 3-band queens, \$1.50 each; fine 3-band breeders, thoroughly tested, the *best*, \$5.00 each; straight 5-band breeders, faultless queens, \$10.00 each. Root's goods, Dadant's foundation, and Bingham smokers.

Jennie Atchley, Beeville, Bee Co., Tex.

In responding to this advertisement mention GLEANINGS.

Warranted Queens, 75c.

Five-band strain, bred for *business*, six for \$3.25; dozen for \$6.00. See former *ads.*, and send for circular. Safe arrival and satisfaction *guaranteed*.

J. B. CASE, Port Orange, Fla.

In responding to this advertisement mention GLEANINGS.

PATENT WIRED COMB FOUNDATION

Has No Sag in Brood-frames.

Thin Flat-Bottom Foundation

Has no Fibre in the Surplus Honey.

Being the cleanest, it is usually worked the quickest of any foundation made.

J. VAN DEUSEN & SONS,

12tfdb Sole Manufacturers, Sprout Brook, Montgomery Co., N. Y.

In responding to this advertisement mention GLEANINGS.

SPECIAL OFFER FOR THE NEXT 60 DAYS.

Untested 5-banded queens, 50 cts. each; six, \$3.00; warranted, each, 60 cts.; six, \$3.50; tested, 75 cts.

Reference, A. I. Root.

Leininger Bros., Ft. Jennings, O.

In responding to this advertisement mention GLEANINGS.

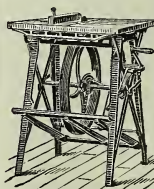
MUTH'S HONEY EXTRACTOR.

Square Glass Honey-Jars, Tin Buckets, Bee-hives, Honey Sections, Etc., Etc. Perfection Cold-blast Smokers.

APPLY TO

CHAS. F. MUTH & SON, Cincinnati, O.

P. S.—Send 10-ct. stamp for "Practical Hints to Bee-keepers."



Read what J. I. PARENT, of CHARLITON, N. Y., says—"We cut with one of your Combined Machines last winter 50 chaff hives with 7-inch cap, 100 honey-racks, 500 broad frames, 2,000 honey-boxes, and a great deal of other work. This winter we have doubled the amount of bee-hives, etc., to make, and we expect to do it all with this saw. It will do all you say it will."

Catalogue and Price List free. Address W. F. & JOHN BARNES, 545 Ruby St., Rockford, Ill.

When more convenient, orders for Barnes' Foot-Power Machinery may be sent to me. A. I. Root.

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Please mention this paper